

Strategic evaluation on Innovation and the knowledge based economy in relation to the structural and cohesion funds, for the programming period 2007-2013 : The Netherlands

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**Strategic Evaluation on Innovation and the Knowledge
Based Economy in relation to the Structural and Cohesion
Funds, for the programming period 2007-2013**

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7 July 2006

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Executive Summary

The overall objective of the strategic evaluation study, as set out in the terms of reference, is that the study should provide conclusions and recommendations for the future of Structural Fund and Cohesion policy. In particular, the Strategic Evaluation will be used to prepare the negotiations with the Member States for 2007-13, to prepare the next operational programmes and to provide input into the 4th Economic and Social Cohesion Report.

In each of the Dutch regions, grouped into North, East, West and South there are good opportunities and appropriate options to support innovation and knowledge. The absorption capacity and opportunities for innovation and knowledge interventions is large in the East and especially in the South.

There is a clear difference between the knowledge economy profile of the West of the Netherlands and the 'rest of the Netherlands. With its strength (and dependence) on public investments in knowledge the provinces that make up the West, also referred to as Randstad, belong to the type of EU regional knowledge economy labelled: 'Sciences & Services Centre'. Except for the relatively low level of GDP per capita Flevoland resembles the knowledge economy characteristics of the West. In the West the low level and negative trend in business R&D expenditures is an important weakness.

In quantitative terms Structural Funds are not (and will not become) the main instrument for supporting innovation and knowledge in the Netherlands. However, in strategic terms, regional innovation policy in the Netherlands would probably not have survived without the Community funding. Especially regarding partnerships and regional networking among companies, and between companies and the research institutes the Structural Fund activities are complementary to the national policy objectives.

The conclusion that can be drawn from the Structural Fund documentation is that management and coordination of innovation & knowledge measures is more difficult than that of other measures, especially when many and different type of actors are involved. However, overall the Structural Fund management authorities have or will be successful in terms of financial absorption capacity, co-funding, and implementation.

Some specific improvements and 'lessons-learned' have been reported, e.g. regarding communication with the European Commission and interaction with management authorities elsewhere in Europe in meetings organised to exchange experience and good practice. Concerning the management of the Structural Fund programmes in general, possibly the most important lesson learned at the beginning of the current programme period is in an early preparation of the new programme period. The national policy cycle concerning territorial innovation policy has invited the regions already in 2004 to provide strategic input, asking regional platforms to show the national government what they have to offer in the light of selected key technological

areas and what and how they propose to support and exploit developments in this respect.

The implementation of Structural Fund measures has contributed to the diversity and enrichment of the innovation support infrastructure. Besides the already existing organisations (e.g. Syntens, ROM's (Regional Development Companies), Chambers of Commerce) new networks and partnerships have been initiated.

Key conclusion 1: Structural Fund interventions in the Netherlands have mainly supported existing regional strengths

An interesting observation that emerged from the analysis is that it seems that Structural Fund interventions in the Netherlands mainly support existing regional strengths. (Flevoland is strong and invests in public R&D, the South is strong and invests in business R&D clusters, the Randstad is strong and invests in life-long learning and human resources). This seems in line with the national policy to invest in existing strength, and it is in line with the Structural Fund framework regarding absorption capacity, but the line of reasoning is contradictory to the systemic characteristics of well functioning regional innovation systems, that incorporate both public and private knowledge organisations. Enhancing focus and critical mass, by supporting specialisation in certain sectors or technological fields is very relevant, but the focus and mass of the support should not be limited to only one isolated type of resources or actors. Relative, and regional specific RTDI weaknesses of the regions are often not explicitly addressed in the regional Structural Fund priorities, e.g. Business R&D is weak in the Randstad, and Public R&D is relatively weak in the South.

Recommendation 1: Regions should not neglect the relatively weaker elements of their innovation system: the Randstad should address the relatively low business R&D expenditure; the South should address the relatively low public R&D expenditures

For the Randstad this would first of all imply that in the next programme period a considerably higher RTDI intensity of the SF intervention is needed. Policy instruments addressing the exploitation of the many public research institutes are very relevant in the Randstad with its 'Science & Service Centre characteristics. New SF initiatives should be coordinated with the policy of the Ministry of Education, Culture and Science in order to complement their support which is focused on the public side of Science-Industry relations. E.g., government research labs are asked to generate spin-offs and transfer technologies to SMEs. Structural Fund interventions could focus on the private side of Science-Industry relations, and SMEs in particular. Moreover, the intervention should not only address manufacturing industries but also service industries. The cluster policy tool which was identified as a case of best practice in the South, could also become good practice in the Randstad. However, it is recommended to adapt the instrument to the regional specificity, by addressing innovative services and explicitly promote involving knowledge institutions.

For the South this recommendation would imply for instance that besides continuation of the successful cluster measurement the Structural Fund interventions

could support in the new period the public research base. Especially in Mechatronics and Life Science; the two technological fields with the largest potential in the South.

Key conclusion 2: In the Randstad there is a relatively weak regional innovation support infrastructure

Although the Randstad is the core of the Dutch economy, the expertise, size, range and experience of the regional RTDI policy, support structures and organisations in the Randstad are more limited than in the rest of the Netherlands: *“The network organisations in the Randstad appear to be less well developed than they are in the South-eastern and Eastern Netherlands”* (In *‘Peaks in the Delta’*, p. 41). This can be explained by both National and EU policy. e.g. the Randstad Provinces lack a Regional Development Company. Furthermore the Randstad provinces do not have much experience with Structural Funds. Anticipating a larger share of support for innovation and knowledge and an increase of the share for the Randstad it is very important to provide support to improve governance.

Recommendation 2: Support the strengthening of the regional innovation support infrastructure in the Randstad

Especially for the Randstad it would be important to pursue strategic initiatives such as regional innovation strategies and pilot actions. Such strategic initiatives would help to develop the necessary regional support structures, learning-experience, cooperation, initiatives and partnerships. It would also provide the flexibility to experiment in the design of policy interventions, e.g. instruments that are specifically designed to foster innovation in service industries. One option is to support the establishment of a regional development company in the Randstad, since it is the only region in the Netherlands that does not have one. A second concrete possibility is to strengthen the network organisations such as: Knowledge alliance Zuid-Holland, UNIE, and Knowledge Circuit. Another concrete option is to provide learning opportunities to policy makers by organising regional, national and international workshops where inexperienced programme managers and potential project initiators, applicants, and participants can learn from experienced programme managers, and experienced project initiators, applicants and participants.

Key conclusion 3: The ‘cluster, triangle and valley’ approach of the regional strategies and programmes developed in the National framework of the Peaks in the Delta provide a good basis for Structural Fund interventions for innovation and knowledge.

In the regional strategies and programmes written in the framework of the new territorial economic policy perspective regions have developed concepts such as ‘triangle, valley, and campus’, which can be headed under the name of ‘Innovation poles and clusters’. Since the policy field of “Innovation poles and clusters” do not have a high priority or large budget at the national policy level, developing this policy field with Structural Fund support would improve the policy mix.

Recommendation 3: Strengthen the policy field of “Innovation poles and clusters” with systemic measures under the new Structural Fund programmes

Key conclusion 4: Poor availability of statistical indicators and analysis regarding innovation at regional level

Very little attention is devoted to innovation and knowledge at regional level from national organisations that provide intelligence to national policy makers (E.g. CBS, NOWT, AWT, CPB). In all the major annual or bi-annual intelligence sources (such as ‘Knowledge and Economy’ published by CBS) regional data is almost absent. A centralised and standardised approach towards collecting and diffusing statistical data and indicators on the knowledge economy at regional level is necessary in order to compare, monitor and analyse regional needs, policy impact and progress in a standardised way. E.g. regionalised results on the indicators of the Community Innovation Survey would strengthen the intelligence needed to improve regional innovation policy. The last few years some individual regional initiatives have tried to overcome this deficit, with own surveys or benchmark studies, but diversification and a bottom-up approach is neither very effective nor efficient.

Recommendation 4: Avoid duplication and enhance concerted or centralised actions concerning regional innovation indicators and analysis in order to promote policy learning

1 Introduction

In March 2000, the EU Heads of State and government launched an ambitious political initiative for the European Union to become “the most competitive, dynamic, knowledge-based economy by year 2010”. The agenda, which has become known as the ‘Lisbon Strategy’, has included a broad range of policies and regulatory measures to achieve this goal.

At the 2005 Spring Council of European Union, Heads of State and government concluded that all appropriate national and Community resources, including those of Cohesion Policy, should be mobilised in order to renew the basis of Europe’s competitiveness, increase its growth potential and its productivity and strengthen social cohesion, placing the main emphasis on knowledge, innovation and the optimisation of human capital. In short, the Council recognised that while some progress has been made since 2000 in moving towards the goals enshrined in the Lisbon Strategy there remains a need to create “a new partnership for growth and jobs”¹

In launching the discussion on the priorities for the new generation of cohesion policy programmes, the Commission published on 6 July 2005 draft Community Strategic Guidelines entitled “Cohesion Policy in Support of Growth and Jobs: Community Strategic Guidelines, 2007-2013”. One of the specific guideline is to improve the knowledge and innovation for growth. More specific areas of interventions, which are proposed by the Commission, include: improve and increase investment in RTD, facilitate innovation and promote entrepreneurship, promote the information society for all, and improve access to finance.²

Innovation is an important factor in releasing the potential of the Lisbon agenda. The knowledge captured in new technologies and processes can drive growth and competitiveness and create new jobs. But knowledge must be treated as part of a wider framework in which business grow and operate. Developing knowledge-based economy requires adequate levels of investment in R&D, education, and ICT as well as creating a favourable environment for innovation.

Less developed areas of the Union are also confronted with this new competitiveness challenge. Increasing cohesion leads to improvements in living standards and the reduction of economic and social disparities, which depend to an important extent on increases in productivity. Increasing competitiveness implies economic change through the introduction of new technologies and new methods of production as well as the development of new skills. Innovation is at the heart of this process. Technological and organisational change and new demands generated by rising

¹ Communication to the Spring European Council (2005) “Working together for growth and jobs: A new start for the Lisbon Strategy”, COM(2005) 141. Available at: http://www.europa.eu.int/growthandjobs/key/index_en.htm.

² Communication from the Commission (2005) “Cohesion Policy in Support of Growth and Jobs: Community Strategic Guidelines, 2007-2013”, COM(2005) 0299. Available at: http://www.europa.eu.int/comm/regional_policy/sources/docoffic/2007/osc/index_en.htm.

income levels and factors which create new economic opportunities and therefore, contribute to the growth potential of these countries.

Structural Funds are the main Community instruments to promote economic and social cohesion. In the past and current programmes, they have contributed to enhance the research potential and innovation in businesses and to develop the information society, particularly in the less developed areas. Cohesion policy has also promoted the development of regional innovation strategies and other similar initiatives in the field of the information society.

The overall objective of the strategic evaluation study, as set out in the terms of reference, is that the study should provide conclusions and recommendations for the future of Structural Fund and Cohesion policy. In particular, the Strategic Evaluation will be used to prepare the negotiations with the Member States for 2007-13, to prepare the next operational programmes and to provide input into the 4th Economic and Social Cohesion Report.

In line with the tender specifications, this country report addresses the following issues:

- An analysis of the current situation in the field of innovation and the knowledge-based economy at national and regional level. For the national level, performance is compared to the average performance for the EU25 Member States plus Romania and Bulgaria; and at regional level, where possible given available statistics, compared to a typology of EU regions;
- Lessons from the past and current experience of implementing innovation and knowledge economy measures in the Structural Funds, both in terms of priorities and strategic approaches; as well as in terms of operational implementation;
- Main needs and potential for innovation in the eligible regions drawing on available studies, strategy development and future and foresight studies; and
- Recommendations on main investment priorities for Structural Funds over the programming period 2007-2013 and their implications for regional development.

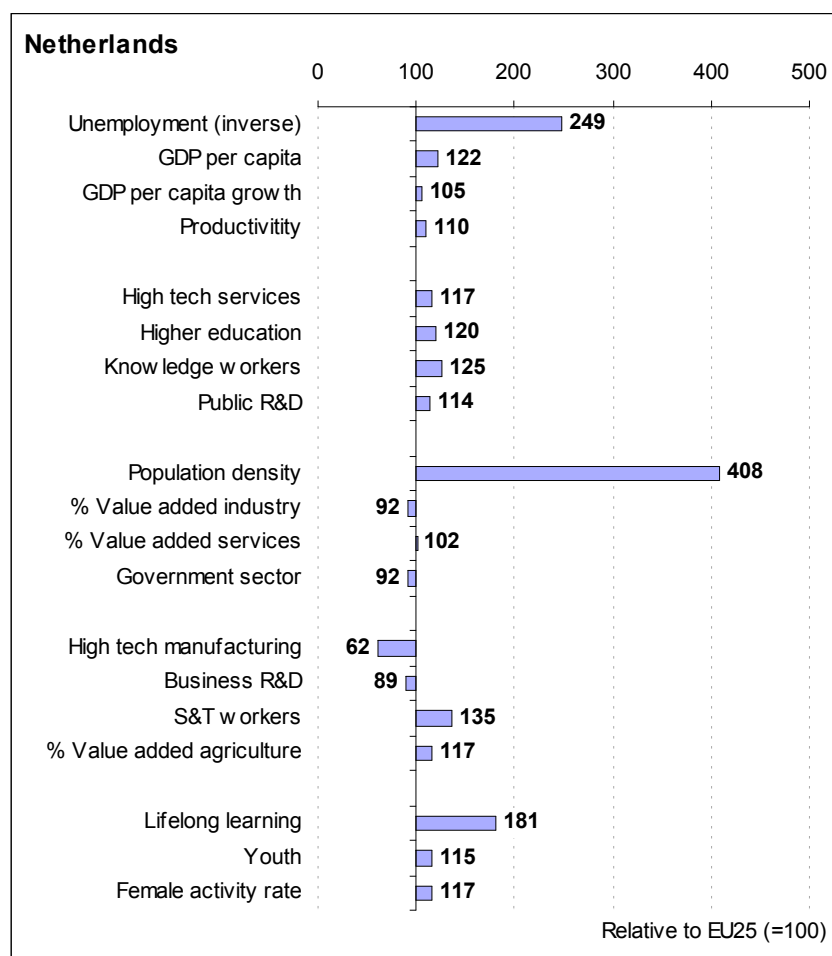
2 Investing in innovation and knowledge: a comparative overview of regional performance

This section provides a synthetic overview of the relative performance of the country, and where relevant main regions, with respect to the EU25 average for a number of selected key structural indicators of innovation and knowledge. The analysis aims to identify **main disparities and needs** at national, and wherever possible, regional level with a view to supporting the definition of priorities for future Structural Funds interventions (see sections 5 and 6 of this report).

2.1 Country overview: innovation and the knowledge economy

Exhibit 1 below provides a snapshot picture of the relative position of The Netherlands compared to the EU-25 average for a series of key knowledge economy indicators.

Exhibit 1: Relative country performance for key knowledge economy indicators



Source: calculations of MERIT based on available Eurostat and national data from 2002-2003 depending on indicator. Detailed definitions and data for each indicator are provided in Appendix B.

The more general indicators regarding economic performance and competitiveness show that a relatively low unemployment rate (6.5% in 2005) is one of the main economic strengths of the Netherlands. The poor economic climate over the last few years has contributed to an increase in the unemployment rate, but most recently employment has started to recover again. The level of GDP per capita indicates that the Netherlands is still a very wealthy country with a high level of productivity, but growth of GDP and productivity has been stagnating over the last few years. In 2002 the economic growth was the lowest in the EU and in 2003 the size of the Dutch economy decreased by 0.7%. The Dutch position on rankings of international competitiveness has been decreasing, e.g. the rankings of the Economist Intelligence Unit, the World Economic Forum and the Institute for Management Development (IMD)³.

According to Netherlands Bureau for Economic Policy Analysis (CPB)⁴, the exceptionally long period of recession is coming to an end in 2006. Economic growth is estimated at 2.75% for 2006 and may accelerate to 3% in 2007. The Dutch economy is expected to take a favourable turn on several fronts. For the first time this century, the Dutch economy will probably grow faster than the economy of the euro zone. Growth in consumption, investments, and exports will pick up. The competitive position of Dutch trade and industry is improving, for the first time in six years. The labour market also shows positive changes. Employment has been rising since the end of 2005, and unemployment is falling. These developments are likely to continue during 2006-7 and may even become more intense. Purchasing power will grow by 1% in both 2006 and 2007, although there will be large differences between households (that is, by social groups, not by region). The government budget may almost be in balance next year, which indicates that there may be increased budgetary possibilities to invest in research, innovation and education.

The Netherlands is a small country, but with 477 inhabitants per square kilometre it is one of the most densely populated. The Dutch economy has a long tradition of being a very open economy. Not only in terms of import and export, but also in terms of incoming and outgoing foreign direct investment. In terms of value added the economic structure does not deviate much from the structure of the EU25, but manufacturing industries have never been the core competence of the Dutch economy, rather it has always been based on a relatively high share of services in the economy. In this respect the above EU25 share of high-tech-services and the below EU25 share of high- and medium-high-tech manufacturing must be seen in the light of this heritage.

In 2002 the private R&D expenditures make 1.1 % of GDP, which is about 10% below the EU25, moreover the business R&D indicator has declined from 1.14% in 1999 to 1.01% in 2003, which is only 80% of EU25, and half of the Barcelona target. In absolute terms total intra-mural R&D expenditures in the Netherlands have increased from 8018 MEUR in 2002, to 8376 MEUR in 2003 and most recently 8657 MEUR in 2004. (The growth in business R&D expenditures have even been more modest: 4804 MEUR in 2003 to 4982 MEUR in 2004). Although there is a modest

³ Ministerie van Economische Zaken, CEBIN (2003): Groei zonder grenzen: de werving van buitenlandse investeringen in een veranderende wereld.

⁴ The Central Economic Plan 2006, as published by CPB (Netherlands Bureau for Economic Policy Analysis), see also: http://www.cpb.nl/eng/news/2006_23.html

trend of deconcentration, still a rather large part of the business R&D in the Netherlands is performed by a few large Dutch multinationals. This concentration of business research in a few companies is also evident in indicators regarding patents. The position of the Netherlands on such indicators is therefore to a large extent depending on the strategies of companies such as Philips, Unilever, Shell, DSM, Akzo Nobel and ASML. The growth of R&D expenditures of Dutch multinationals has mainly taken place in R&D centres outside of the Netherlands. Off-shoring of R&D by Dutch multinationals is therefore a major threat. The challenge and the opportunities for improvements in business R&D will probably require a long-term strategy to generate and nurture the capabilities of smaller firms.

Contrary to the private R&D expenditures, the level of public R&D expenditures are above that of the EU25. However, the Dutch trend in public R&D expenditures in relation to the trend in the rest of the EU is also negative.

Regarding human resources the position of the Netherlands is better than for the EU25 as a whole, e.g. regarding the percentage of the population that has completed tertiary level of education, and the percentage of the population that is occupied in science and technology (S&T). However, this good performance in human resource indicators is seriously threatened for many years now by the relatively poor supply of new science & engineering (S&E) graduates: the Netherlands' performance on this indicator is 40% below that of the EU as a whole. In order to make effective use of the available human resources it is important in a knowledge economy to have a high degree of participation. Female participation has been among the lowest of the EU for many years, but over the past decade it has increased rapidly, and as is shown in exhibit 1 it is now above that of the EU25. It should be noted, though, that a very high part of the female participation consists of part-time jobs.

Life-long-learning refers to the share of the adult population that has recently followed training and courses. The strength of the Netherlands on this indicator may be related to the performance in terms of relatively low unemployment.

The European Innovation Scoreboard (EIS)⁵ also shows the performance on some additional indicators. For instance, concerning the broadband penetration rate the Netherlands ranks second within the EU and third in the world after Korea. As there is no similar ICT indicator available via Eurostat at NutsII level, it was not possible to incorporate this indicator in this study. Another EIS indicator refers to performance in youth education and the position at 97% of the EU is below expectations.

The EIS also highlights the Dutch strength in IPR, due to excellent performance for triadic patents. However, many of the patent applications (both EPO and triad) are made by multinationals with many research centres outside of the Netherlands. Patents from these foreign research units are frequently assigned to the Dutch headquarters, while the actual research may have been performed at foreign affiliates. According to the most recent EIS the Netherlands greatest weakness is in application of knowledge, primarily due to poor results on the 'new-to-firm sales share' (37% of the EU average) and due to the above-mentioned low level of employment in medium-high and high tech manufacturing.

⁵ See www.trendchart.org

The Netherlands is an above average performer on the EIS, ranking 8th on the summary innovation index out of the EU 25 countries and 11th out of 33 countries. Its peer countries for performance include Belgium, Austria, the UK, France and Italy. However, for several years the trends have been negative and worrying. Accordingly the overall classification of the Netherlands in the EIS has been 'losing momentum'.

Difficult economic conditions since 2001 have created problems for dealing with the well-known weaknesses of the Dutch innovation system, which includes many trends running below the EU average. The most serious challenge for the Netherlands is to improve business R&D. The second main challenge is to improve the supply of S&E graduates and the youth education attainment level.

2.2 Regional disparities and recent trends

In order to analyse and describe the knowledge economies at regional level in the EU, the approach adopted was to reduce and condense all relevant statistical information available for a majority of regions. The approach involved firstly reducing the information from a list of selected variables into a small number of factors by means of factor analysis. These factors are:

- Public Knowledge (F1): human resources in science and technology combined with public R&D expenditures and employment in knowledge intensive services is the most important or common variables in this factor. Regions with large universities will rank high on this factor.
- Urban Services (F2): The most important variables for this factor are value-added share of services, employment in government administrations and population density. A key observation is that academic centres do not necessary co-locate with administration centres.
- Private Technology (F3) This factor is most strongly influenced by business R&D, occupation in S&T activities, and employment in high- and medium-high-tech manufacturing industries.
- Learning Families (F4). The most important variable in this factor is the share of the population below the age of 10. The Learning Families factor could also be interpreted as an institutional factor indicating a child-, learning- and participation- friendly environment, or even a 'knowledge-society-life-style' based on behavioural norms and values that are beneficial to a knowledge economy.

In a second step, the 200 plus EU27 regions were grouped into 11 types of regions (see appendix A) displaying similar characteristics by means of a cluster analysis on the above-mentioned 4 factors and GDP per capita. In the case of the Netherlands the regions are grouped as follows, distinguishing the West from the rest of Holland:

- **The Randstad**, that is, the three most urban Provinces in the West of the Netherlands, stand out from the other Dutch provinces. They are members of the cluster of EU knowledge economy regions labelled "**Sciences & Services Centre**". This cluster groups regions with diverse nationality consisting mainly of capital city regions including London, Paris, Brussels and Prague. Typical are the high scores on the Public Knowledge and Urban Services factors. Population density is very high. This type also has the highest GDP per capita and

productivity. The variables that are captured by the factor Learning Families also show a score above the EU regional average, but disappointing is the relatively low presence of high and medium-high-tech manufacturing and the business R&D intensity.

- The **other nine Dutch regions** are classified as **Learning regions**. The Learning regions of the EU are first of all characterised by a high score on the factor 'Learning Families', and the three main components of this factor: life-long-learning, youth and female activity rate. On the other factors the regions are close to the EU regional average. Unemployment is on average the lowest compared to the other EU regions. Employment in government administration is limited. GDP per capita is rather high. The regions are located in Austria, Ireland, the Netherlands, Sweden and the UK. There are many similarities with the Nordic High-tech Learning regions, but the business sector in the Nordic version invests more in R&D.

Detailed scorecards per Province can be found in Appendix B. The province of Flevoland is still an exceptional region in Europe because it has only been dry land for a few decades, whereas it has been part of the North-sea before. This exceptional situation can still be witnessed in the result of the cluster analysis, since the region did not really fit in any of the 11 identified clusters, or types of European regions. However, Flevoland increasingly resembles the knowledge economy factor-profile of the other Provinces that make up the Randstad region of West Netherlands (see also exhibit 2). The only reason that Flevoland did not show up in the 'Science and Services Centre' group is because it still has a rather low (but catching-up) level of GDP per capita.

Within the 'rest of the Netherlands' the three northern provinces share some characteristics of a relative peripheral location, e.g. in terms of population density. The three southern provinces share some characteristics based on the relative importance (in the Dutch context) of manufacturing industries in the production structure. This leads to the following four groups of regions in the Netherlands: North, East, West, South.

Within the North of the Netherlands the city of **Groningen** is a centre of public knowledge as is indicated by the high score on public R&D. The performance on several indicators, e.g. GDP per capita, productivity, and value added of industry, is strongly influenced by the national gas-extraction industry. The Province of **Friesland** shows a low score on public R&D. In the Dutch context population density is low, but it is very close to the average of the EU Learning regions. The presence of high tech services and the business R&D expenditures are weak points in the profile of the knowledge economy of Friesland. The share of value added of industry in the economy and of high-tech manufacturing is higher than for the country as a whole and higher than the average learning region. The profile of **Drente** is very similar to the one of Friesland. Again the share of high tech manufacturing is better than for the country as a whole, but overall the indicators show a low performance relative to that of the country and the EU cluster of Learning regions. Together with Groningen these three Provinces form North Netherlands.

Overijssel and Gelderland make up East Netherlands. Although the sub-region of Twente hosts one of the three Dutch technical universities, for Overijssel as a whole

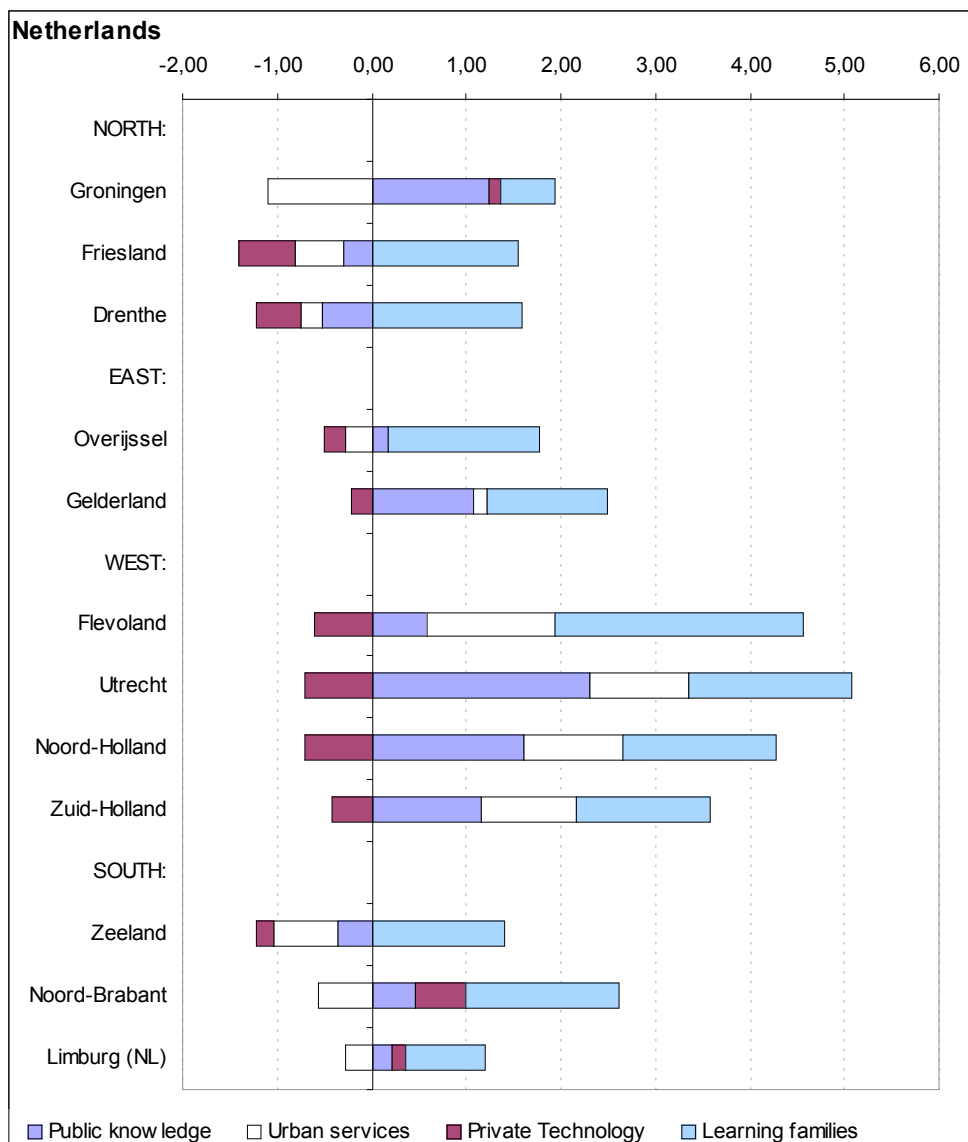
the largest knowledge economy disparity with the national situation concerns the indicators of the factor 'public knowledge'. A relative strong point is high-tech manufacturing and also private R&D is stronger than both the national performance and the average of the learning regions in the EU. The neighbouring province of **Gelderland** performs close to the national average on most indicators, with one clear exception: the knowledge economy of Gelderland is very public R&D intensive. Besides the Universities of Wageningen and Nijmegen this strength is based on government R&D institutes.

Flevoland has become the most public-R&D intensive Province of the Netherlands. This recent position is based on the location of several government research institutes. A second strength is in high-tech services. However, in terms of GDP per capita and productivity Flevoland has the lowest performance level in the Netherlands. Most of the growth in population and economic activity has taken place in Almere situated in the western part, which has strong linkages (e.g. commuting) with the neighboring Amsterdam agglomeration in Noord-Holland. The high score on the learning Family factor is based on the relative high percentage of the population that consists of children under 5 years of age. The Province of **Utrecht** has a higher share of people with an academic degree than all other regions in the Netherlands. Also for the indicators on high-tech services, knowledge workers and public R&D Utrecht has a very high score. Especially the ICT service sector takes an important position in the knowledge economy of Utrecht. Contrary to this strength in human resources and high-tech services, high-tech industry and business R&D is very weak. **Noord-Holland**, with Amsterdam as major city, also has strength in higher education and knowledge workers, but it has a very disappointing share of high-tech services and public R&D, e.g. compared to Utrecht. The share of high-tech manufacturing is even lower than for Utrecht. The situation for business R&D is a bit better than in Utrecht, but still lags behind the score of both the Netherlands and the EU25 as a whole. The Province of **Zuid-Holland** has the highest population density and also the largest share of people working in public administrations. The National government is concentrated in The Hague. Strong knowledge economy indicators are high-tech services and public R&D. The universities are located in Rotterdam, Leiden and Delft. The latter one being one of the three technical universities of the Netherlands. Again, high tech manufacturing and business R&D are weak, but not much weaker than the average Science and Service Centre region in the EU27. Besides a well-represented business administration and high-tech services sector, agriculture is also a relatively important sector in Zuid-Holland, especially compared to the average of the EU Science & Service Centre regions.

Zeeland is one of the three southern provinces in the Netherlands. Zeeland has a relative low unemployment rate. Public R&D is very low and also the other indicators of the Public Knowledge factor are low compared to the national and the EU learning regions average. Typical for the south of the Netherlands manufacturing is still a relative important sector. High- and medium-high manufacturing is well represented in Zeeland, but Business R&D is rather low. **Noord-Brabant** has a weakness in public R&D but a very strong performance in business R&D. Therefore the knowledge economy profile of Noord-Brabant is close to that of the Nordic high-tech learning regions. Both Noord-Brabant and Limburg are the provinces in the Netherlands that have strength in both high-tech manufacturing as well as business R&D expenditures. The size of government administration is relatively small in

Noord-Brabant. **Limburg** also has strength in high- and medium-high manufacturing as well as in business R&D expenditures but the indicators which to a large extent make up the Public Knowledge factor are the weakest aspect of the knowledge economy in Limburg. The unemployment rate is below that of the Netherlands as a whole and recently more jobs in manufacturing have or are threatened to disappear. Limburg also has the fastest aging society of the Netherlands, which result in the first small signs of a declining population.

Exhibit 2: Stapled factor scores per region showing the deviation per factor from the average of 215 regions in Europe



Source: MERIT. The bars are stapled factor-scores showing the deviation (1=standard deviation) per factor from the average of 215 EU regions (0.00). The longer the bar, the bigger is deviation. Detailed regional scorecards can be found in Appendix B.

From the trends per region for the period 1996-2002 (see exhibit 3) the following observations emerge:

- Growth of GDP per capita between 1996 and 2002 has been highest in the West and South.

- The North has had a more limited growth, but over the same period unemployment has decreased especially in the North.
- North and South have had the largest decrease in the share in manufacturing industries in value added and employment.
- Population density has increased in Flevoland, and especially in Almere in the west of Flevoland.
- The share of the population with higher education has especially increased in the Randstad, except in Zuid-Holland.
- R&D intensity had increased in Noord-Brabant and Zeeland, whereas it has declined in the Randstad.

Exhibit 3: trends per region in key indicators

			Un-employment	Per capita GDP	Industry share	Agriculture share	Population density	Tertiary education	R&D intensity
			1996-2003 %-pnt ch.	1996-2002 % growth	1996-2002 %-pnt ch.	1996-2002 %-pnt ch.	1996-2002 % growth	1999-2002 %-pnt ch.	1996-2002 %-pnt ch.
Netherlands			-2,30	5,02	-2,64	-0,93	3,97	2,35	-0,14
<i>North NL:</i>									
Groningen	NL11		-4,60	3,38	-7,77	-0,34	2,43	2,58	-0,36
Friesland	NL12		-3,20	4,83	-0,67	-1,83	4,00	2,23	0,26
Drenthe	NL13		-2,90	3,71	-4,81	-1,13	4,56	0,39	0,11
<i>East NL:</i>									
Overijssel	NL21		-2,40	4,76	-2,73	-1,70	3,92	1,27	0,24
Gelderland	NL22		-2,00	4,80	-2,02	-1,06	3,92	1,44	-0,24
<i>West NL:</i>									
Flevoland	NL23		-1,50	5,34	-0,87	-2,45	25,13	4,99	-0,82
Utrecht	NL31		-1,30	5,82	-1,39	-0,50	6,61	4,74	-0,83
Noord-Holland	NL32		-2,40	5,31	-2,26	-0,45	3,83	4,95	-0,12
Zuid-Holland	NL33		-2,30	5,10	-1,26	-0,78	2,79	0,47	-0,34
<i>South NL:</i>									
Zeeland	NL34		-3,20	4,08	-2,65	-0,60	2,65	4,26	0,56
Noord-Brabant	NL41		-1,80	5,13	-3,66	-1,34	4,29	2,60	0,57
Limburg (NL)	NL42		-2,00	5,31	-4,34	-1,14	0,69	0,89	-0,19

Source: MERIT based on Eurostat data for period indicated

2.3 Conclusions: innovation and knowledge performance

Difficult economic conditions since 2001 have created problems for dealing with the well-known weaknesses of the Dutch innovation system, which includes many knowledge economy trends running below the EU average. The most serious challenge for the Netherlands is to improve business R&D. The second main challenge is to improve the supply of S&E graduates and the youth education attainment level.

There is a clear difference between the knowledge economy profile of the West of the Netherlands and the 'rest of the Netherlands'. With its strength (and dependency) on the factors 'Urban Services' and 'Public Knowledge' the provinces that make up the West, also referred to as Randstad, belongs to the type of EU regional knowledge

economy we have labelled: ‘Sciences & Services Centre’. Except for the relative low level of GDP per capita Flevoland resembles the knowledge economy characteristics of the West. In the West the low level and negative trend in business R&D expenditures is an important weakness. Its knowledge economy is therefore highly dependent on government sector investments in knowledge and R&D.

The other provinces are classified as ‘Learning Regions’ and it is relevant to distinguish them into North, East and South. The main disparities and needs per region are summarized in exhibit 4.

Exhibit 4: summary of key disparities and needs per region

Region / group of regions	Key factors explaining disparity of performance (weaknesses)	Key needs in terms of innovation and the knowledge economy
North Netherlands (Groningen, Friesland, Drente)	<ul style="list-style-type: none"> • Slow growth in GDP per capita • Low share of higher educated, especially in Drente • Low level of Business R&D expenditures • Weak (technology transfer towards, and) embeddedness of ‘branch-plant’ high-tech manufacturing 	<ul style="list-style-type: none"> • Improving the exploitation and diffusion of public knowledge and human resources concentrated in Groningen • Enlarge systemic innovation and RTDI activities in economy
East Netherlands (Overijssel, Gelderland)	<ul style="list-style-type: none"> • Relative low level of productivity • Lack of embedded large R&D- and technology intensive lead companies • Pockets of RTDI concentrated in 3 places (Twente, Wageningen, Nijmegen/Arnhem) 	<ul style="list-style-type: none"> • Support growth of knowledge intensive SMEs • Exploit complementarities of the three universities • Develop internationally attractive high quality urban business locations and services
West Netherlands or Randstad (Utrecht, Noord-Holland, Zuid-Holland, Flevoland)	<ul style="list-style-type: none"> • Low level and negative trend in Business R&D expenditures; • Strong dependence on government sector for investments in knowledge and R&D • Poor knowledge transfer, limited academic spin-off and spill-overs • Lack of high-technology manufacturing 	<ul style="list-style-type: none"> • Increase business R&D intensity • Increase technology transfer, spillovers and leverage effects of public R&D • Promote high-technology manufacturing and entrepreneurship
South Netherlands (Zeeland, Brabant, Limburg)	<ul style="list-style-type: none"> • Low public R&D expenditures • Shortages in knowledge workers and people with higher education • Lack of knowledge intensive services • Dependence on globalising private RTDI performers • Continued challenge of restructuring: job losses in manufacturing: e.g. in Limburg 	<ul style="list-style-type: none"> • Increase public R&D investments in order to exploit the high leverage potential • Strengthen the public knowledge infrastructure • Increase regional embeddedness of large R&D performers by supporting high-tech campus development.

3 Innovation and knowledge: institutional context and policy mix at national and regional levels

Structural Fund support for innovation and knowledge is contingent on and seeks to generate strengthen the existing national (and/or regional) innovation system⁶ in each Member State. In particular, institutional, legal and financial factors in the innovation system can limit the potential for certain types of intervention. Moreover, within the framework of the EU's "Lisbon objectives", Structural Fund interventions are expected to complement and provide added value to national (or regional) policy framework. In some Member States, Structural Fund interventions in favour of innovation and knowledge are marginal with respect to the national investment and policy effort, in others Structural Funds provide a main source of funding for such interventions. In both cases, there is a need to identify relevant national and EU policies, which can have an impact on decisions on funding priorities.

3.1 Institutional and legal framework for innovation and the knowledge economy

This section of the report appraises two broad factors that condition the potential for coordinated intervention of EU and national (regional) policies in favour of innovation and knowledge:

- The first concerns the organisational structures of public and semi-public bodies responsible for the design, implementation and monitoring of innovation and knowledge economy policies. In particular, the analysis considers the responsibilities for funding or managing specific types of measures liable to be considered for support under the Structural Funds;
- The second concerns the institutional, legal and financial frameworks, which condition the linkage of national (regional) financing with EU financing.

The Dutch **national** innovation system is characterised by four features and/or trends:

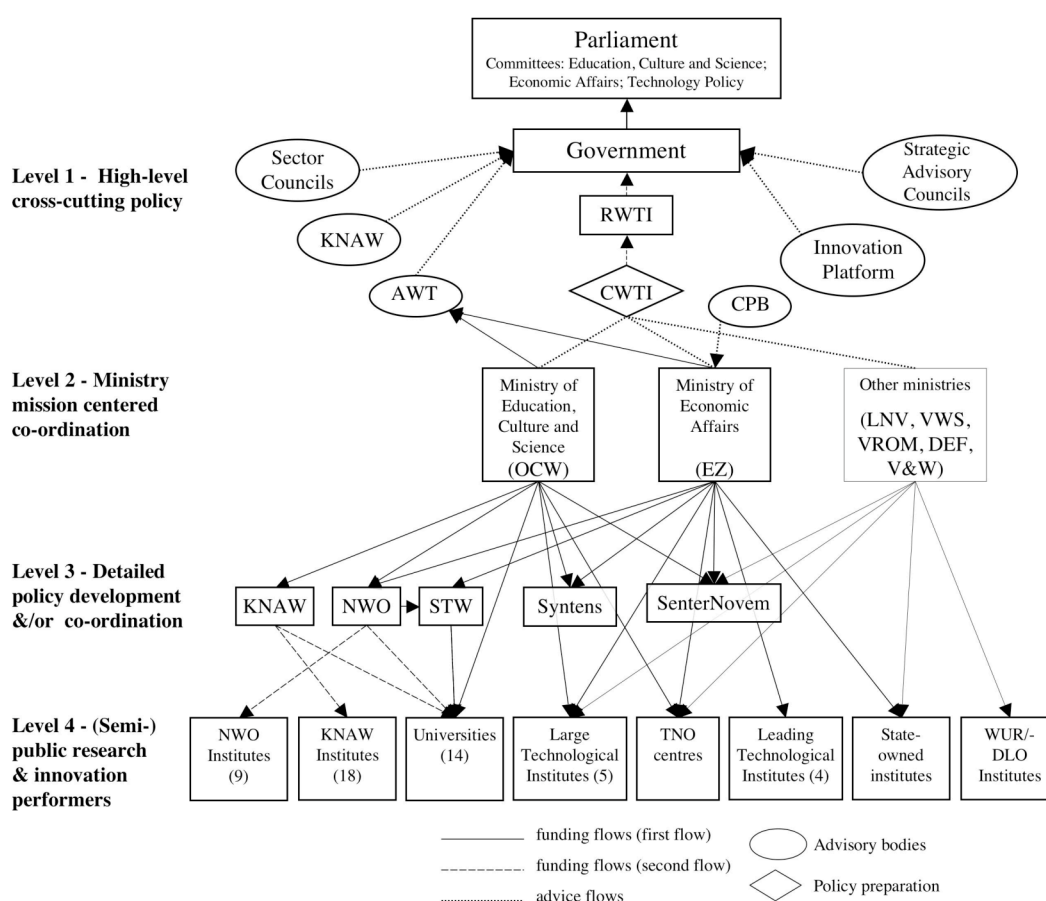
- Complexity of the governance system and the linkages between the various actors which does not however hamper a good level of informal cooperation;
- Strong but decreasing division of tasks (and difference in culture) between science, technology and innovation communities. These two spheres are gradually moving towards each other at both national and level;
- Decentralised and fragmented science and research community;
- Broad use of agencies and intermediaries for implementing policy programmes.

Compared to many other EU countries the **regional** government administrations in the Netherlands (the Provinces) have very limited powers and funding regarding knowledge economy fields of policy. However, they fulfil an important role in promoting and coordinating regional initiatives and institutional structures (at

⁶ The network of organisations, individuals and institutions, located within or active within national or regional boundaries, that determine and shape the generation, diffusion and use of technology and other knowledge, which, in turn, explain the pattern, pace and rate of innovation and the economic success of innovation.

multiple-scale-level of governance, e.g.: cooperating Municipalities or Provinces, or international cross-border cooperations) and in linking this regional organisation capacity to national structures⁷.

The main national responsibility in innovation policy is held by the **Ministry of Economic Affairs (EZ)** and its five directorates-general (DG), in particular the DG Enterprise and Innovation, which deals with issues such as knowledge, technology, employment and innovative entrepreneurship. Administrative implementation and execution is the role of innovation-focused agencies (in particular SenterNovem) directly under its control. Economic Affairs (EZ) is also responsible for **regional** economic policy (including innovation) and this ministry coordinates and represents the national government in relation to the EU Structural Fund policies. EZ is also present at the regional level with small regional offices, or actually contact persons who serve as information channel between the national and regional level. EZ also co-funds two main networks of regional innovation agencies: the Syntens network and the Regional Development Companies (ROM's).



The **Ministry of Science, Culture and Education (OCW)** defines the scientific research and education policy. It is responsible for a good operation of the research infrastructure, in terms of size, its innovative capacity, its quality and its efficient use of resources. The OCW delegates responsibility for agenda setting and strategic

⁷ See also: Nauwelaers and Wintjes (2004), 'Analysis on the regional dimensions of the 3% Action Plan'; ERAWATCH Prototyping Phase; JRC-IPTS, Seville.

choices to the funders (agencies) and the research organisations, in particular the NWO. The ministries of EZ and OCW have increased cooperation, amongst others regarding the challenges in Science-Industry linkages, which has increased the formerly low interest and involvement at the regional level of policymakers in the field of science.

R&D and innovation is also on the policy agenda of numerous other ministries⁸, mainly the **Ministry of Transport, Public Works and Water Management**; the **Ministry of Agriculture**, under the auspice of which further work is being done to integrate Wageningen University and the Agricultural Research Department (WUR). The **Committee for Science, Technology and Information Technology (CWTI)** has the responsibility of the inter-ministerial coordination. It involves representatives from the different ministries and the Cabinet and channels the proposals from the ministries to the Cabinet.

The Ministry that perhaps has (at least had) the largest influence on regional policy in the Netherlands is the Ministry of housing, spatial planning and environment (VROM). Not anymore in terms of funding for regional development (the title of a spatial planning policy document in the late 80's explains a lot: "Regions on their own strength"); but in this ministry there is still the need to make coherent spatial planning proposals and there is a tradition in identifying, preserving and strengthening of certain regional specific functions. For instance, spatial planning policy has cornered the concept of 'Main-Ports' (a concept that has dominated spatial economic policy for decades) referring to the two ports that have large National economic importance: the harbour of Rotterdam and the airport of Schiphol. The latest special policy document has identified a third main-port of national economic importance: Brain-port referring to the strengths of South-east of the Netherlands, and especially the Eindhoven region.

At regional level there are a large and increasing number of initiatives and structures, ranging from local agencies, regional innovation platforms, knowledge networks and alliances, co-operating municipalities or provinces, steering groups, regional sector organisations, regional knowledge networks, branches of employers organisations or lobby-groups, regional knowledge foundations and Innovation funds. The strength of the provincial government⁹ is that they are linked to most of these institutions (e.g. by representation in boards and steering groups). It is impossible to be exhaustive and it is hard to define which organisations are 'main', but exhibit 5 gives an overview of the type of organisations and some concrete examples of the many individual organisations.

⁸ See also "Overzicht van de TOF-cijfers 2006" available in Dutch at www.ocw.nl; and in English see: Wintjes, R. and H. Hollanders (2004), ERAWATCH – Prototyping phase, Country Report on The Netherlands. IPTS, Seville.

⁹ See "De rol van de provincies op het gebied van innovatie en kenniseconomie" study commissioned by the Inter-Provincial Committee (IPO, 2004).

Exhibit 5: main organisations per policy area.

Policy objectives	Type of organisation	
	National (&/or regional) public authorities and agencies	Key private or non-profit organisations
Improving governance of innovation and knowledge policies	<ul style="list-style-type: none"> Ministry of Economy & Ministry of Education, Culture and Science; Innovation Platform, AWT, CWTI, national sector advisory councils, Strategic advisory councils Provincial and local government (individual or in joint efforts, e.g. SNN, SRE) 	<ul style="list-style-type: none"> Regional development companies, e.g. OOST NV, NOM, LIOF, NV REDE, etc. Employers associations Regional Innovation Platforms e.g. Brabant Innovation Council, 'Knowledge alliance Zuid-Holland'; Platform RITP; Programme Horizon Universities Regional steering groups Chambers of commerce Sector/branch associations
Innovation friendly environment	<ul style="list-style-type: none"> Ministry of EA & other Ministries Provincial and local government (individual or in joint efforts, e.g. SNN, SRE, Brabant-stad) 	<ul style="list-style-type: none"> As above Regional Innovation Funds (e.g. 'Northern Innovation support Fund', NIOF;)
Knowledge transfer and technology diffusion to enterprises	<ul style="list-style-type: none"> Ministry of Economy & other Ministries Provincial and local government (individual or in joint efforts, e.g. SNN, SRE) 	<ul style="list-style-type: none"> Universities, especially the 3 Technical Universities Technology transfer agencies, centres (e.g.: CHEST Regional Foundations and networks (E.g. UNIE, Knowledge Circuit, etc. TNO, NLR, TOP-institutes Consultancy firms
Innovation poles and clusters	<ul style="list-style-type: none"> Ministry of EA & Ministry of Education, Culture and Science & others Provincial and local government Ministry of Spatial Planning (VROM) 	<ul style="list-style-type: none"> Regional cluster organisations, valleys Innovative lead-firms and their Campus , (e.g. Philips, DSM
Support to creation and growth of innovative enterprises	<ul style="list-style-type: none"> Ministry of EA & Ministry of Education, Culture and Science and their agencies Provincial and local government 	<ul style="list-style-type: none"> Incubators and start-up facilities (parks, buildings, centres Techno-starters platforms Venturing companies and other large research performers, e.g. Philips, DSM, TNO, Large Technological Institutes Regional development agencies, e.g. NV OOST, NOM, LIOF, NV REDE, etc Universities
Boosting applied research and product development	<ul style="list-style-type: none"> Ministry of EA & Ministry of Education, Culture and Science ; e.g. Senter-Novem: Syntens: SME support on product development 	<ul style="list-style-type: none"> TNO, STW, NWO TNO, NLR, TOP- and other Technology Institutes

Source: study team based on national/regional policy documents, TrendChart reports, OECD reports, etc.. See appendix C for a detailed definition of the policy categories.

There are no specific institutional, legal or financial frameworks which have limited the linkage of national financing with Community funds. However, the priorities and objectives of national Ministries or RTDI institutions are not always the same as those of regional organisations, which can lead to delays because it takes time to get to agreements and arrange co-funding. Early preparations for the next Structural Fund period have been the widely proposed and excepted remedy to this potential limitation.

There are no major gaps in the Dutch institutional landscape of RTD and innovation policy. At regional level there is however a disparity in the sense that the number, range and experience of the regional RTDI policy and support structures and organisations in the Randstad are more limited than in the rest of the Netherlands; *“The network organisations in the Randstad appear to be less well developed than they are in the Southeastern and Eastern Netherlands”* (Ministry of Economic Affairs, 2004, p. 41)¹⁰. Partly this can be explained by National and EU policy. For instance, the Randstad Provinces lack a Regional Development Company (ROM’s: NOM in the North; LIOF and BOM in the South; OOST NV in the East, result of the recent merger of the GOM of Gelderland and the OOM of Overijssel)¹¹. Furthermore the Randstad provinces do not have much experience with Structural Funds.

One general shortcoming in regional innovation policy-making is very little attention devoted to innovation and knowledge at regional level from national organisations that provide intelligence (statistics and analyses) to national policy makers.

3.2 Policy mix assessment

This section provides a summary overview and analysis of the national and regional policy mix in favour of innovation and knowledge in which the Structural Fund interventions take place. The analysis is conducted with respect to seven broad categories of objectives of innovation and knowledge policies (see appendix C for an explanation of each category).

Measures identified per category of the policy objectives are further sub-divided in terms of the direct beneficiaries of funding (or legislative) action. The report adopts three broad types of organisation as targets of policy intervention:

- Policies supporting academic and non-profit knowledge creating institutions;
- Policies supporting intermediary/bridging organisations involved in innovation support, technology transfer, innovation finance, etc.;
- Policies supporting directly innovation activities in private sector.

¹⁰ Ministry of Economic Affairs (2004) *Pieken in de Delta: Gebiedsgerichte Economische Perspectieven*, The Hague, July 2004. (In English: *Peaks in the Delta: Regional Economic Perspectives*). Downloadable at www.minez.nl

¹¹ See also: Ecorys (2004) ‘Evaluatie Regionale OntwikkelingsMaatschappijen 2000-2004’. EZ, Den Haag.

The matrix below (exhibit 6) summarises the current policy mix in the Netherlands at national level. A simplified coding system is used with intensity of support (financial or political priority) for different policy areas and targets indicated by a colour coding system.

Improving governance of innovation and knowledge policies has been the first priority defined and acted upon by the present government, e.g. by launching the Innovation Platform in order to involve stakeholders and to enhance horizontal, systemic, cross-ministerial action. An essential change in the governance approach has been: to identify, support and exploit ‘excellence’, in order to creating critical mass and focus both in terms of in targeted key technological and territorial areas. Also in the 2000-2006 period the design, evaluation and review process and culture has been strengthened. As a result of increased cooperation between the Ministry of Education, Culture and Science (OCW) and the Ministry of Economic Affairs (EZ) and the increase of more systemic research & innovation policy it has been less relevant and difficult to distinguish the beneficiaries on the business side and the Science and education side (the columns in exhibit 6).

Promoting an **innovation friendly environment** is the first action line of the Dutch innovation policy as set out in the Innovation Letter (EZ, 2003). The WBSO fiscal R&D incentive scheme is by and large the main generic business oriented innovation policy instrument in the Netherlands. Many other policies from different ministries are captured under this heading of innovation friendly environment. In the Dutch interpretation it also means: encouraging R&D partnerships, taking steps to counter the risk of a shortage of knowledge workers, and attracting knowledge intensive foreign investors.

Knowledge transfer and technology diffusion to enterprises has been an increasingly important policy field because of the ‘policy-mix-opportunity’ to tackle a weakness in the private sector by exploiting strengths in the public knowledge sector. Before 2000 however the gap between science and industry was hardly addressed. Some main new policies programmes can be found in this category: e.g. the Technopartner Programme, SKO and Innovation Vouchers. Vouchers aim to increase the innovativeness of SMEs and the interactions between the beneficiaries: SMEs and knowledge providers.

The evaluation in 2002 of the national **innovation cluster policy** was not very positive¹². A whole range of diverse projects (often involving a number of companies cooperating in innovation) was classified under this heading. Recently the priority of this policy area has increased slightly with the new territorial oriented economic policy (‘peaks in the Delta’, EZ, 2004). New names and concepts have emerged, e.g.: ‘hot-spots’ and ‘opportunity zones’. Moreover, to a large extent it has been identified as the research and innovation policy field where the regional level has an important

¹² See: ‘Evaluatie van het clusterbeleid’, Ministerie van Economische Zaken (2002)

role to fulfil¹³. However, the national budget for the territorial oriented approach remains very limited. Therefore regional and EU funding could play an important role.

Support to creation and growth of innovative enterprises is an important way to generate more innovative business, which is the second action line of the national innovation policy. It is not possible to describe all initiatives here, but there is a recent one with a territorial dimension. “Zones of opportunity” for start-ups and fast growing companies is a joint initiative of the Ministry of Economic Affairs (EZ), the 3 technical Universities of Delft, Eindhoven and Twente and the municipalities of these cities. In addition a Zone of opportunity is created at the business park AVANTIS in the province of Limburg. In the zone of opportunity companies are supported by being given space, coaching and assistance in the application for subsidies, licenses and permits. The four pilot projects should provide the government with lessons and experience on how to create an excellent business climate for start-ups and fast growing companies.

Under the heading of **boosting applied research and product development** the main instruments are funded by the Ministry of Education, Culture, and Science (OCW). The main instrument from the Ministry of Economic Affairs (EZ) to increase R&D spending towards the 3% target is the WBSO, mentioned earlier. The 3% target is however in the Netherlands not seen as the overall main goal, it is regarded as an important input-indicator, but output indicators should also be addressed.

It can be concluded that horizontally, for the national government as a whole the main priority has been: **Improving governance** of innovation and knowledge policies. The priority of the Ministry of EZ has been to generate an **innovation friendly environment**. An important priority of the Ministry of OCW is **boosting applied R&D**. It can also be concluded that intermediary organisations are seldom direct beneficiaries of knowledge and innovation policies. Providing bridging incentives and network opportunities by programme funding is favoured.

Although it is difficult to tell (ex-ante) what would be the ideal policy mix for tomorrow, we can observe that most policy objectives are addressed by national policies. One element: ‘Innovation poles and clusters’ has a low but slightly increasing priority. Because the budget for this policy objective is still very limited this policy field holds key opportunities for Community funding.

¹³ See: ‘Peaks in the Delta; Regional Economic Perspectives’, Ministerie van Economische Zaken (2004).

Exhibit 6: Policy mix for innovation and knowledge

Policy objectives	Target of policy action		
	Academic /non-profit knowledge institutions	Intermediaries/bridging organisations	Private enterprises
Improving governance of innovation and knowledge policies	All ministries • Adopted policy approach to support “excellence”, create critical mass and focus • Evaluation culture • Innovation Platform		
Innovation friendly environment	Several Ministries, mainly OCW: • work-permits for foreign knowledge workers; • Human resource Casimir, Delta-plan S&T graduates, “HOOP 2004” (research in the HEI sector).	Ministry of EZ: Attracting innovative FDI by technology match-making Other Ministries policies regarding Human resources	Ministry of EZ: WBSO fiscal R&D incentive for private R&D Training Facility (Scholingsfaciliteit) RDC (Regional Development Companies)
Knowledge transfer and technology diffusion to enterprises	Mainly Ministry of Education & Science, often in cooperation with Ministry of Economic Affairs, e.g. Technopartner programme		Ministry of EZ: Syntens supports the innovative capacity of SMEs Innovation Vouchers SKO to stimulate technology following SMEs
Innovation poles and clusters	Ministry of Education and Science: Policy of focus and mass in science		Ministry of Economy: Generate ‘ hot-spots ’, capitalizing on strong innovative regions (backing winners)
Support to creation and growth of innovative enterprises	‘ Valorisation Grants ’ enables researchers at universities to apply for a grant to create a spin-off company from a public knowledge institute	TechnoPartner Programme was set-up to stimulate high-tech start-ups, Seed Facility, Knowledge Exploitation Subsidy Arrangement, Technopartner Platform	Venture Capital scheme (Regeling Durfkapitaal) Zones of opportunity
Boosting applied research and product development	Ministry of EC&Science: Leading and Large Technology Institutes (LTIs), STW, NWO, KNAW, TNO		Ministry of EA: support from Senter-Novem and Syntens and TNO , SBIR , Small Business Innovation Research

Legend

Top policy priority
Secondary priority
Low priority

Source: calculations of study team based on national/regional policy documents, TrendChart reports, OECD reports, etc.

3.3 Conclusions: the national innovation system and policy mix

The conclusions of this chapter are summarized in Exhibit 7.

Exhibit 7: Key opportunities and constraints for investment by the Structural Funds

Policy objectives	Opportunities for Community funding (national priorities)	Constraints or bottlenecks (factors limiting Community funding)
Improving governance of innovation and knowledge policies	<ul style="list-style-type: none"> Establishment of a Regional Development Companies in the Randstad; Development of integrated (cross-ministerial) evaluation systems which can be used to assess and benchmark policy-mix's; 	<ul style="list-style-type: none"> Poor availability of statistical indicators and analysis regarding innovation at regional level Less well developed and experienced regional innovation policy network organisations in Randstad
Innovation friendly environment	<ul style="list-style-type: none"> Support local and regional innovation networks involving businesses, the knowledge network and the public authorities. 	<ul style="list-style-type: none"> Some structural problems regarding education and human resources can not be solved merely by project funding
Knowledge transfer and technology diffusion to enterprises	<ul style="list-style-type: none"> Invest in knowledge transfer organisations and facilities Support knowledge transfer and diffusion from public R&D institutes; 	<ul style="list-style-type: none"> Risk of duplicating efforts because of several recent initiatives in this field
Innovation poles and clusters	<ul style="list-style-type: none"> Large opportunities to support organisational clustering of related economic activities: organisation of regional networks of businesses and researchers around specific themes (in valleys, clusters, triangles, Campuses, hot-spots and Brainport) 	<ul style="list-style-type: none"> Difficult to plan/programme the needed support in advance, flexibility and room for creativity and pilots may be needed (e.g. Innovative Actions kind of support) Is it sustainable when innovative lead-companies are scarce or difficult to involve
Support to creation and growth of innovative enterprises	<ul style="list-style-type: none"> Related to Technostarters and Techno partners facilities Establish some additional 'opportunity zones' 	<ul style="list-style-type: none"> Competition among similar policy instruments
Boosting applied research and product development	<ul style="list-style-type: none"> Transfer the Southern Cluster-projects to other regions Support large research partnerships on identified key technology area's 	<ul style="list-style-type: none"> Risk of hosting to few companies with product development capacities Risk of low capacity to absorb and exploit research results;

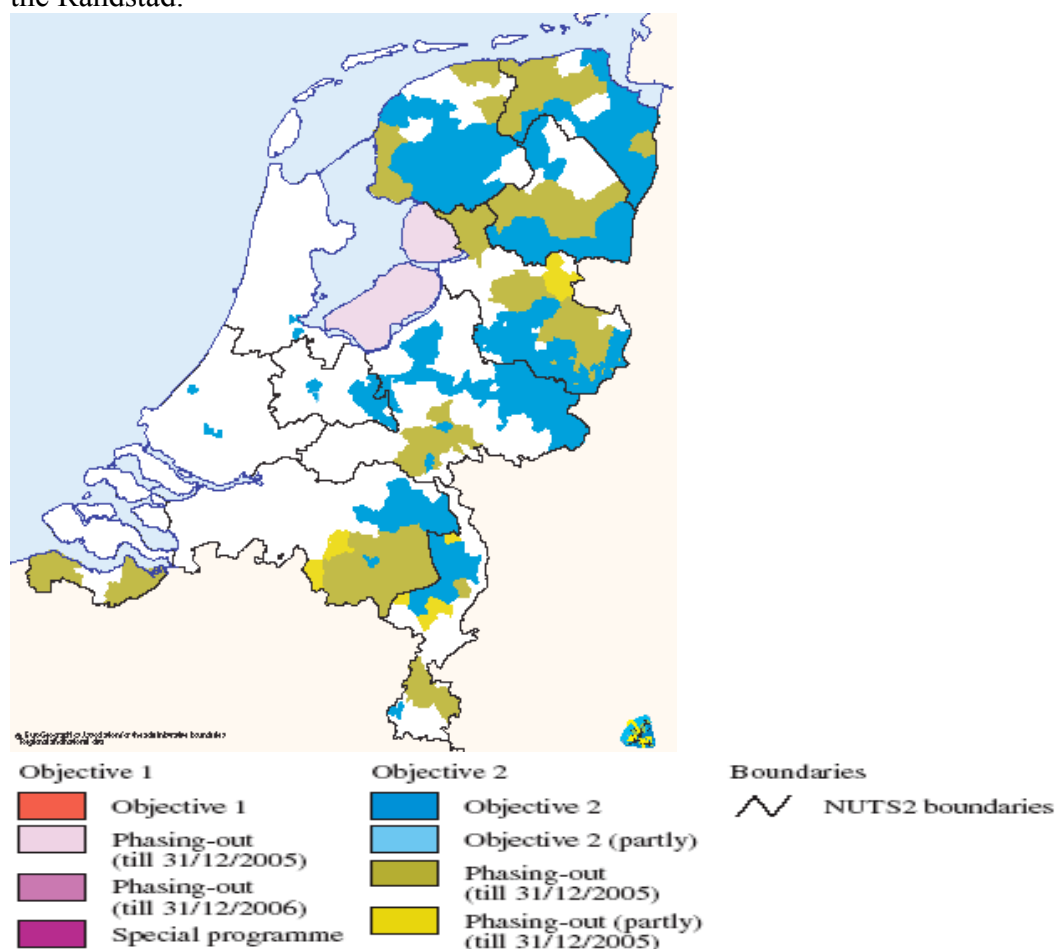
4 Structural Funds interventions to boost innovation and create a knowledge economy: 2000-2006

This section of the report provides an analysis of the patterns of Structural Fund expenditures in the fields of innovation and knowledge-based economy during the current programming period (2000-2006 for EU-15 or 2004-2006 for the new Member States). It examines the patterns from both a strategic point of view (the policy mix pursued by the Structural Funds programmes) and at an operational level (consumption of funds, management of innovation measures, indications of relative effectiveness of measures, case studies of 'good' practice).

4.1 Strategic framework for Structural Fund support to innovation and knowledge

4.1.1 Strategic approach to innovation & knowledge in Structural Fund programmes

The below map shows the eligible areas in the Netherlands and the type of Structural Fund programmes. Besides the complex and very detailed geographical definition of the eligible area's the map also shows that in the West of the Netherlands the eligible area's are limited to a few spots, which refer to small area's of the four large cities in the Randstad.



Before analysing the Structural Fund expenditures in the fields of innovation and knowledge, a short description of the current 5 Structural Fund Programmes are provided.

Objective 1 programme of transitional support for Flevoland, SPD

The Structural Funds contributed 132 MEUR out of a total budget of 491 MEUR. The SF contribution stems from ERDF (62%), ESF (25 %), EAGGF (8%) and FIFG (5%). The region eligible for Structural Fund assistance under the programme has 306,000 inhabitants (2% of the Netherlands' population). The programme of 'phasing-out' transitional support for Flevoland revolves around the following four priority areas: Priority 1: Developing urban areas; Priority 2: Developing rural areas; Priority 3: Improving production structure; Priority 4: Social cohesion and the labour market. The Province of Flevoland is the Managing authority and coordinates all the bodies involved in its implementation. Due to the totally unique situation (see section 2) of this new region in transition 'structuring the economy' would describe the rationale of intervention better than 're-structuring' which is the normal rationale of intervention in normal Objective 1 regions. Interventions regarding innovation and knowledge are in priority 3. The focus is on the RTDI infrastructure of the future, e.g.: information technologies; medical technologies; biotechnology; pharmaceuticals; environmental protection; agro-foodstuffs; metalworking; and synthetic materials processing.

Objective 2 Programme for East Netherlands, SPD

The Structural Funds contributed 148 MEUR out of a total budget of 418 M EUR. This contribution stems from ERDF (100%). The programme focuses on three priority areas: Priority 1: Land-use planning; Priority 2: Economic stimulation; Priority 3: Social cohesion. The programme covers rural areas in the provinces of Gelderland, Overijssel and Utrecht. The industrial areas of Twente and the region of Arnhem-Nijmegen also benefit from the programmes, but to a lesser extent. The Province of Gelderland is the Management Authority for the Objective 2 Programme. Innovation and knowledge-based policy is in priority 2: Economic stimulation. The goal is to reinforce businesses competitiveness by improving their ability to innovate, encouraging the transfer of knowledge and favouring co-operation between companies.

Objective 2 Programme for the North of the Netherlands SPD

The Structural Funds contributed 357 MEUR (100% ERDF) out of a total budget of 1,252 MEUR. The programme involves three provinces in northern Netherlands: Friesland, Groningen and Drenthe. Besides technical assistance the programme revolves around four priorities: Priority 1: Reinforcement of the private sector; Priority 2: Development of urban centres; Priority 3: Improve the functioning of the labour market (including improving the skills of human resource managers, etc.). Priority 1 has the largest budget and includes most of the innovation and knowledge-based interventions. The goal is to stimulate new economic activity by attracting new businesses and consolidating those already present. Interventions include: material conditions necessary to establishing a business and innovation and technology transfer. The SNN (Samenwerkingsverband Noord-Nederland), the co-operation body of the northern Netherlands, is the Management Authority.

Objective 2 Programme for South Netherlands SPD

The Structural Funds contributed 146 MEUR (100% ERDF) out of a total budget of 402 MEUR. The programme covers the rural areas located in the provinces of North

Brabant and Limburg, as well as Zeeland. The Province of North Brabant is the Management Authority for the Objective 2 Programme. The programme has three priorities: Priority 1: Urban development; Priority 2: Economic stimulation; Priority 3: Social cohesion. Both priority 1 and 2 include many innovation projects. Priority 1 aims to revitalise economic sites and develop knowledge-based infrastructure. In priority 2 the goal is to reinforce businesses' competitiveness by improving their ability to innovate, encouraging the transfer of knowledge and favouring co-operation between companies.

Objective 2 Programme "Urban Areas Netherlands" SPD

The Structural Funds contributes 208 MEUR (100% ERDF) out of a total budget of 616 MEUR. The programme has the following priorities: Priority 1: Urban economic environment (physical industrial and tourist locations, public spaces & green areas); Priority 2: Stimulating economic activity (training, education, promote ICT-usage); Priority 3: Enforcement of social economic potential. The eligible areas are the following: Amsterdam (Bijlmer & Amstel, Groot-Oost), Rotterdam (Delfshaven, Feijenoord), Den Haag (Centrum-Zuid), Utrecht (Westflank), Enschede (Stedelijk hart), Arnhem (Kern), Nijmegen (Kanaalgebied), Eindhoven (StEw), Maastricht (Noord). The Ministry of Internal Affairs acts as the Managing Authority for the programme. Innovation and knowledge-based economy plays a minor and indirect role in this programme.

The calculations presented in the two exhibits below are based on the allocation of Structural Fund budgets based on the intervention code classification. For practical purposes, the calculation of financial resources allocated to innovation and knowledge has been limited to the RTDI codes:

- 181 Research projects based in universities and research institutes;
- 182 Innovation and technology transfers, establishment of networks and partnerships between businesses and/or research institutes;
- 183 RTDI Infrastructure;
- 184 Training for researchers.

Additional calculations based on broader definitions of innovation are presented in Appendix D.

Exhibit 8: Overall allocation of resources at an objective 1 and 2 level (planned figures in Euro)

Objective	Total cost	SF			NF	
		Total	ERDF	ESF	Public	Private
RTDI INTERVENTIONS						
Objective 1	27,264,898.30	7,020,856.70	7,020,856.70	0.00	13,672,141.60	6,571,900.00
Objective 2	76,282,082.60	18,666,775.20	18,666,775.20	0.00	24,332,740.35	33,282,567.05
TOTAL COHESION POLICY						
Objective 1	491,551,484.00	131,928,242.00	81,660,000.00	33,590,000.00	270,348,242.00	89,275,000.00
Objective 2	2,689,177,086.00	859,000,000.00	859,000,000.00	0.00	1,303,860,512.00	526,316,574.00

Source: programming documents and financial data provided by DG REGIO

Using this 'pure' RTDI coding we can observe that the objective 1 programme in Flevoland covers about 26 percent of all RTDI interventions under SF (see also exhibit 8).

Out of the total for Structural Funds in the Netherlands in the current period barely 2.6 percent can be labelled RTDI interventions, that is again using the pure RTDI codes (see exhibit 9). Using the softer definition (including ICT and business support services) the share would be 22 percent.

Exhibit 9: Regional allocation of resources (Euro)

Programs	RTDI INTERVENTIONS			TOTAL		
	Total SF	ERDF	ESF	Total SF	ERDF	ESF
OBJECTIVE 1						
DOCUP OBJ1 FLEVOLAND	7,020,856.70	7,020,856.70	0.00	131,928,242.00	81,660,000.00	33,590,000.00
OBJECTIVE 2						
DOCUP obj. 2 Noord-Nederland	9,129,680.00	9,129,680.00	0.00	356,600,000.00	356,600,000.00	0.00
DOCUP obj. 2 Stedelijke gebieden	2,208,687.90	2,208,687.90	0.00	208,170,000.00	208,170,000.00	0.00
Oost-Nederland	2,769,907.30	2,769,907.30	0.00	147,960,000.00	147,960,000.00	0.00
Zuid-Nederland	4,558,500.00	4,558,500.00	0.00	146,270,000.00	146,270,000.00	0.00
Total Regional OPs	25,687,631.90	25,687,631.90	0.00	990,928,242.00	940,660,000.00	33,590,000.00

Source: programming documents and financial data provided by DG REGIO

The share of RTDI intervention in total Structural Funding is 5.3 % in Flevoland, 3.1 percent in the South (Zuid), and 2.6 percent in the North (Noord). In the East and the Urban programme the percentages are even lower, 1.1 and 1.9 respectively.

The total of 25 MEUR on RTDI funding is a small share of the total national budgets for research and innovation. In 2003 for example the total (intra-mural) public R&D expenditures was 3572 MEUR. However, it should be borne in mind that regional governments in the Netherlands have no formal RTDI competencies and hardly the budgetary means. So, for the regions the Structural Funding is of considerable strategic importance.

Strategic RTDI initiatives funded by the EU such as RTP, RIS, RITTS, Innovative Actions, etc. have had an influence on mainstream Structural Fund implementation in terms of quality of governance and the institutional network capacity. The capabilities accumulated by experience with such strategic initiatives are also recognisable in the design of the projects. Many project idea's or approaches (also at national policy level) originate from former pilots (e.g. the new national instrument 'Innovation Vouchers' is based on the success of the Research Vouchers RTP pilot project in Limburg). Also, the more recent ERDF funded Innovative Actions are evaluated very positively by regional policy makers. When we asked in one of the interviews to mention a case of best practice the answer was: *"Innovative Actions, because it is 'mean and lean, effective and efficient'"* (Interview with Dick de Jager, Province of North Brabant). In Gelderland the flexibility of the IA initiative was also appreciated very much¹⁴.

¹⁴ See Provincie Gelderland (2005), 'New perspectives for the region; experiences with European subsidy programmes in Gelderland';

4.1.2 Specific measures in favour of innovation and knowledge.

The below table shows the key innovation and knowledge measures of the Dutch SF programmes 2000-2006 (see exhibit 10). It is a summary of the table in appendix D.2.

Exhibit 10: Key innovation & knowledge measures

Policy area	Number of identified measures (all programmes)	Approximate share of total funding for innovation & knowledge measures	Types of measures funded (possibly indicating importance)
Improving governance of innovation and knowledge policies			
Innovation friendly environment			
Knowledge transfer and technology diffusion to enterprises	1	80 %	Transfer of knowledge to SMEs & building research facilities (9 projects)
Innovation poles and clusters	1*	85 %*	Product development by micro-clusters of companies*
Support to creation and growth of innovative enterprises	2	60 %	SME aid schemes, trajectories (131 projects)
Boosting applied research and product development	2	90 %	R&D facilities and business R&D networks/micro-clusters (54 projects)

Nb: this table is a summary of the table in appendix D.2. The total of the percentage share per policy area may sum to more than 100 since certain measures fall into several categories.

* In the SPD south part of one measure concerns micro-clusters or network of companies that are supported to jointly develop a certain new product, the whole measure is double counted here because it is also listed under Boosting applied research and product development.

The above way of trying to capture the policy-mix does not do justice to the large variety of projects, e.g. the empty box on Innovation friendly environment does not mean that no initiatives in this policy field has been implemented at all. The same holds for the policy field of 'Innovation friendly environment', e.g. there are Innovation Funds for financing innovative companies, such as the "Innovatiefonds II" for Gelderland as part of the SPD obj.2 East of the Netherlands. However, as indicated in the exhibit above the three main policy areas of intervention are indeed:

- Knowledge transfer and technology diffusion to enterprises;
- Support to creation and growth of innovative enterprises, and
- Boosting applied research and product development.

The emphasis on these **Structural Fund policy areas is coherent with the National weaknesses** in section 2 and in line with national priorities concerning the objectives: technology transfer towards enterprises; to increase innovative businesses; promote R&D partnerships.

However, **at regional level**, an interesting observation emerging from the analysis is that seemingly **Structural Fund interventions mainly support existing regional strengths**. Those aspects of the knowledge based economy of the regions that are already a strength are used as instruments to generate general economic performance indicators, such as employment. On the other hand, the (relative, and regional specific) RTDI weaknesses of the regions are often not explicitly addressed in the regional Structural Fund priorities.

As the first of three specific examples to back this hypothesis we look at the matching strength and Structural Fund focus in the South. In the South the focus of the Structural Fund support is on joint research and product development by micro-clusters (networks) of innovative enterprises, which is a clear strength of the South, especially in the Eindhoven area in North-Brabant; A strength we have identified in section 2 with the high score on the factor 'Private Technology'.

In section 2 we have identified that Flevoland is the most public-R&D intensive province of the Netherlands and this performance is almost entirely based on the government sector research institutes¹⁵. Under the objective 1 programme in Flevoland (which is the most RTDI- intensive Structural Fund Programme in the Netherlands) strengthening and exploiting this strength is a key area of innovation related Structural Fund interventions in Flevoland.

Third, looking at the Structural Fund interventions in the Randstad, which relates to part of the eligible area's under the Objective 2 Programme "Urban Areas Netherlands", we observe that it mainly addresses aspects such as human resources, life-long learning and attractiveness of business locations. Confronting this emphasis with the strengths of the Randstad provinces as indicated by the factor-scores indeed brings us to conclude that the Structural Fund interventions have addressed regional specific strengths, while the weakness in the 'Private Technology' factor (see exhibit 2) has not been addressed.

This observation touches on an essential discussion in the Netherlands on the rational for regional innovation policy. A discussion that also plays an important role in the present negotiations between the European Commission and the Dutch government. In short, the EU argument is still mainly the traditional regional policy argument: regional disparities show where support is needed in order to reduce it. The Dutch government already in the late 80's with the policy document "Regions on their own strength" shifted away from this reasoning because the differences in general economic development among the regions in the Netherlands are very low (the lowest in the EU) and there are no real 'poor', 'problem' or 'peripheral' regions. In many academic studies geographers have characterised this egalitarian model of the Dutch spatial or regional economic system as polynucleated (Lambooy, 1998), or as one 'urban field' (Wever & Stam, 1999).

Structural Funds are not the main instrument for supporting innovation and knowledge in the Netherlands, but regarding partnerships and regional networking among companies, and between companies and the research institutes they are complementary to the generic business oriented innovation policy instruments, which are mainly governed by the Ministry of Economic Affairs.

¹⁵ since it does not have a full university and research at the other higher-education institutes is minimal in the Netherlands, although increasing.

When comparing the key Structural Fund innovation & knowledge measures as identified in exhibit 10 with the national policy mix as set out in exhibit 6, it can be concluded that more emphasis of the Structural Fund intervention in the policy area of 'Innovation poles and clusters' would enhance the complementarity of the national and regional policy.

4.2 Learning from experience: the Structural Funds and innovation since 2000

4.2.1 Management and coordination of innovation & knowledge measures

This section reviews the overall management of Structural Fund interventions in favour of innovation and knowledge during the current period. It examines the coherence and the role of key organisations or partnerships in implementing Structural Funds measures for innovation and knowledge, the linkages between Structural Fund interventions and other Community policies (e.g. the RTD Framework Programme) and the financial absorption and additionality of the funds allocated to innovation and knowledge.

Due to the diversity of interventions within the Structural Fund programmes and measures it is not easy to assess its effectiveness or efficiency in general. Regarding innovation- and knowledge-economy policies several interviewees have stated that innovation projects are more difficult to manage, e.g. compared to investments in infrastructure. Especially the more 'soft' and 'intangible' interventions, and business oriented projects that involve many interacting project participants are more difficult to plan, implement, and evaluate according to strict guidelines and timeframes. Moreover, investments in research and innovation are almost by definition risky, results are not guaranteed, uncertainty prevails, impacts are systemic and difficult to measure by traditional regional development indicators. Learning-by-doing and 'learning-by-interacting' are therefore effective approaches to managing innovation, as well as managing innovation policy support. However, regarding Structural Fund interventions this does not seem to be the dominant characterisation of the management and coordination of the Structural Fund programmes and measures.

Our conclusion from the Structural Fund documentation and the interviews is therefore that management, coordination and impact assessment of innovation & knowledge measures is more difficult than for other measures, especially real estate and infrastructural projects. However, we may conclude that in the Structural Fund terminology the management authorities have (or will be at the end of the current period) been successful regarding absorption capacity, co-funding, commitment, and implementation.

Some specific improvements and 'lessons-learned' have been reported, e.g. regarding communication with Brussels and interaction in meetings organised to exchange experiences and good practices with management authorities in other EU15 countries. Concerning the management of the Structural Fund programmes in general, the perhaps most important lesson and improvement is the early preparation of the new

programme period, e.g., there has been more, and more exhaustive pre-analysis done at both national and regional level. Since the policy cycle of the new national territory oriented economic policy (that was kicked-off with 'Peaks in the Delta' by Ministry of EZ, 2004) is running about half a year ahead of the planning cycle for the new Structural Fund period, the regions are better prepared. Moreover, it has increased the chance for effective integration between the regional, national and EU policies.

As in many other Member States, over the years the Structural Fund interventions have generated own rules, concepts, jargon, evaluation traditions, impact-indicators, monitoring style, reporting habits, etc. In the North, South, East and Flevoland the programme and project management has learned how to be successful in this specific administrative context. But, since most of the Provinces in the West do not have the same level of experience (neither with ERDF, nor with regional innovation policy), some interviewees have expressed concerns regarding the management capacity for the new programming period in the Randstad.

The implementation of Structural Fund measures has contributed to the diversity and enrichment and the innovation support infrastructure. Besides the already existing organisations (e.g. Syntens, ROM's, Chambers of Commerce) new networks and partnerships have been initiated, but it did not lead to simplistic duplication of and/or competition between organisations. New specialisations of individual organisations as well as cooperations between organisations have emerged. The relatively less well-developed innovation support infrastructure in the Randstad Provinces could be related to the fact that they hardly have experience with innovation related SF interventions.

The Structural Funds in the Netherlands also has had a strengthening impact upon the cooperation between provincial governments. The most intense cooperation is perhaps in the North, where the provinces of Friesland, Drenthe and Groningen cooperate in the form of the SNN that has integrated the SF programme into the 'Strategy of the North' (Kompas).

There is also increased cooperation between Overijssel and Gelderland in the East. Besides joint strategy formulation the increased integration can be witnessed by, e.g. the merger between the two Regional Development Companies OOM and GOM into OOST NV. The merger was not due to the Structural Funds, but it has had a positive influence on the cooperation in the East.

In the current programming period there was a 'bottom-up' search for synergies, driven by strategies and initiatives of specific organisations, individuals, networks, institutes, branch organisations, platforms and steering groups etc. Co-funding from the national government, e.g. the Ministry of Economic Affairs, did not come with top-down 'advice'. Several people at regional level fear that in the next programming period there will be more top-down steering towards complementarity and compliance with national priorities. The policy report 'Peaks in the Delta' has been received as a rather provocative document, telling the regions that in the future the Government will only invest in the best, asking the regions what they have to offer that could contribute to the national economic objectives. Some fear that the co-funding in the next period will be less flexible and that the recently streamlined and limited budget for 'territorial policy' will be fully used as co-funding Structural Fund interventions in the next period.

Concerning links with the Framework Programme no information has been found. This could indicate that the linkages may be rather limited.

Links with other EU support programmes are strongest with the RTP, RIS, RITTS and Innovative Actions.

It should also be noted that a rather large part of innovation support comes with the INTERREG A programmes. An evaluation of the Ministry (EZ, 2004) showed that for the period 2000-2003 about 13 percent of the regional programmes expenditures was directed to innovation. But for the four INTERREG A programmes in the Netherlands during the same period this share that is spend on innovation support was with 25 percent much higher. Out of the total costs for the INTERREG programmes of 218 MEUR (2000-2003), about 55 MEUR has been spend on innovation. The projects are for example aimed at enhancing the cross-border cooperation between knowledge and research institutes and/or SME's. Cooperation takes place on biotechnology, micro-reactors, mechatronics, logistics and e-business. One example is the Biotech Business Support project (total costs 7,3 MEUR), which involves cooperation between Fachhochschule Steinfurt (moleculair biology, TU Twente (Biomaterials), Medical Spectrum Twente, and University Groningen. This resulted for instance in a biotech incubator-network. New cross-border Euregional cooperation will be enhanced in the framework of the new territorial oriented economic policy as laid down in 'peaks in the Delta'. The minister of economy for instance estimates that the new Dutch-German cross-border programme (2007-20013) can count on about 120 MEUR support from the EU.

Exhibit 11: absorption capacity of innovation & knowledge measures

Objectives	Allocated SF	Disbursed total SF	Expenditure capacity
Objective 1	23.368.159,10	11.386.674,02	48,7%
Objective 2	195.200.211,35	94.230.997,20	48,3%

Source: ISMERI

The seemingly low 'expenditure capacity' of 48 percent (exhibit 11), is in fact a rather old score, it has increased and according to the management authorities present at the focus-group held on April 2006, no major problems are foreseen towards the remaining part of the current programme. Some shifts in funds have taken place, and the Mid-Term-Reviews and Updated reviews mention different reasons and arguments. Often there is an 'absorption-capacity-driven' argument, but there are also other arguments mentioned. For example, the authors of the Mid-term Review for the South have mentioned the following argument: "the recent increase of importance of this policy area in the national priorities", for not shifting a remaining budget for R&D infrastructure to other measures. This concrete example illustrates the increased awareness of the importance of the RTDI intensity of the Structural Fund interventions.

The Structural Fund measures for innovation and knowledge are expected to succeed in spending all the resources at the end of the planning period. The main reasons for a

slow start regarding innovation projects relate to the above-mentioned difference in management and planning opportunities. Buildings are more easy to plan and build according to plan, but organising and planning innovation network projects, establishing cooperation between many different organisations takes more time and is less easy to plan according to a strict linear timing schedule.

4.2.2 Effects and added value of Structural Fund support for innovation and knowledge

This section of the report analyses the effects and added value of the Structural Fund interventions in favour of innovation and knowledge during the current programming period. The analysis is based on two main sources, namely: a) available evaluation reports or studies concerning Structural Fund interventions; b) interviews and additional research carried out for this study. Accordingly, this section does not pretend to provide an exhaustive overview of the effects or added value¹⁶ of Structural Fund interventions.

It is first of all necessary to understand that regarding policy support for innovation and knowledge it is very difficult to measure the impact, especially in terms of the very general economic indicators such as ‘created jobs’. For instance, at company level a successful (from point of view of the involved company) process-innovation could also destroy jobs at the involved company in the short run¹⁷. Although new indicators have been developed to assess effects and added value regarding innovation, it is mentioned in most evaluations and reviews that one can not easily compare the impact of Structural Fund support for innovation with support for other policy areas. Most quantitative data provided in the mid-term reviews are still not very useful in assessing the impact on the performance of the region concerning research, innovation and knowledge. However, the indicators are helpful in improving the concerning policy instruments towards a better performance of the instruments. Most relevant output indicators are often the number of participating companies in innovative projects or the number of innovative products and processes developed.

The extent to which the SF measures attained their expected impact as defined in programming documents differs of course from measure to measure. Overall, it would appear that the impacts are (or are forecast to reach the level in the end), as expected. This could indicate that the interventions have been successful.

A more relevant indicator to measure the impact in terms of innovation is the number of innovative products. Both the Update Mid-term evaluation SPD South NL and the Update Mid-term evaluation SPD East NL report on this impact indicator on the number of new products (947 and 345 respectively) and both report more innovations than anticipated. How this has affected the performance of the region or country concerning innovation and knowledge economy remains unclear, because there is no

¹⁶ A good definition is “The economic and non-economic benefit derived from conducting interventions at the Community level rather than at the regional and/or national level”. See Evaluation of the Added Value and Costs of the European Structural Funds in the UK. December 2003. (Available at : www.dti.gov.uk/europe/structural.html)

¹⁷ Overall, it can be concluded that for innovation related measures it is very difficult to reach the targets on job creation, since the relevant measures in none of the five regional programmes in the Netherlands reach the target of employment creation.

STIMULUS Cluster measurement (South Netherlands):

Over 100 clusters, have been supported by Stimulus in the South of the Netherlands. A cluster refers to a project based micro-network of companies. The companies jointly develop a certain new product. The instrument has been evaluated and the results are very positive (see appendix E for details). The main socio-economic condition that contributed to the success has been the dominant culture in Brabant in terms of informal networking, trust and ease of communications.

Some other regions will also adopt this type of instrument in their future SF programmes. However, there may be some constraints in the transferability, especially for regions that do not have the dense networks of innovative manufacturing companies. Moreover, the absorption capacity in the Randstad for such a tool could be enhanced by adapting it to service industries. The evaluation also highlighted that Stimulus could function more pronounced as an intermediate between knowledge institutions and companies. This recommendation is also relevant when applied to other regions.

such data on the absolute number of new products available at regional or national level. New data from the Community Innovation Survey will become available in 2006, e.g. including indicators as the share of innovations in total turnover. When projects, programmes and regions are monitored and evaluated using the same indicators, it would be less difficult to assess impact or value-added of Structural Fund interventions.

The output indicator showing the number of companies that have participated in ICT/R&D projects is also a relevant one for performance in innovation and knowledge economy. Again we find this indicator only in the Programmes of the south and east regions. In the South the target was 137 participants but in 2004 already the actual number was much more: 512. In the East, with 295 in 2004 the target of 300 will be easily outperformed. Overall, the evaluations and reviews suggest that the South and

the East seem to be the regions that have the best potential to generate and support innovation.

Based on the available data we can not relate the above two relevant innovation indicators directly to a specific project or policy instrument, but it is obvious that so called 'cluster-projects' or cooperation projects have a concrete impact in terms of generating innovations (see textbox). This type of measure appears to be the type that is most likely to speed up the rate and scope of innovation at regional level, but the absorption capacity for such projects may limit the possibilities to increase the size of this policy instrument. The absorption capacity may also be relatively lower in the Randstad, although the project format may also be adapted to service industries.

For projects on environment (sometimes in combination with innovation) it seems more difficult to reach the output targets, e.g. the number of such projects in the Urban Programme and the number of companies that have participated in such projects in the East and in the South (both under measure 2.1 and 2.2) was lower than expected¹⁸.

Sometimes there are territorial differences within the Programmes, e.g. in the East it appeared to be more difficult to involve participation from the countryside than from the urban areas. Also for the South it has proven more difficult to initiate activities to enhance the knowledge infrastructure (measure 1.4) in the eligible areas of the objective 2 rural programme in north-east Brabant and North- and middle Limburg.

¹⁸ Taken together measure 2.1 and 2.2 in the South, 295 firms were expected to participate in environment projects, but at the end of 2002 barely 12 firms participated (See Bartels, 2003).

One of the reasons is the fact that the definition of the eligible area's implies an orientation on the areas that do not host many firms.

The results of specific instruments which have led to easier access to finance for innovative enterprises are difficult to measure in a standardised way. Concerning the policy-output in terms of the number of innovative companies that have received easier access to finance the results of the instrument in the different programmes is mixed.

The value-added of the Structural Fund interventions regarding RTDI is in the increased innovativeness and economic performance of the SME sector (but especially in the East and the South), and in the strategic importance of innovation policy at regional level. Regional innovation policy in the Netherlands would probably not have survived without the Community funding.

4.3 Conclusions: Structural Funds interventions in favour of innovation and knowledge

Overall, the focus of the SF interventions in the Netherlands have been on SME's and innovation. The total of 25 MEUR on 'pure' RTDI interventions is rather limited (2.6% of total SF). The objective 1 programme for Flevoland is the most RTDI intensive (5.3 %). For the East and the Urban programme the percentages of 'pure' RTDI interventions are very low (1.1 and 1.9 percent respectively). However, the reported effects and added value suggest that the South and the East of the Netherlands have the best potential to support and generate innovation.

Strategic RTDI initiatives funded by the EU such as RTP, RIS, RITTS, Innovative Actions, etc. have had a positive influence on mainstream Structural Fund activities. Also identified in this chapter is that a rather large part of innovation support comes with the INTERREG A programmes, and for the new programming period the opportunities for even stronger integration with the regional programmes have increased.

Regional specific RTDI weaknesses of the regions are often not explicitly addressed with the Structural Fund interventions. Regarding management and coordination an important lesson learned in the current programme was the need for early preparation (pre-analysis and alignment of national and regional strategies) of the new programme period, which was initiated with the new territorial oriented policy 'Peaks in the Delta' (Ministry of EZ, 2004).

More emphasis of the Structural Fund intervention in the policy area of 'Innovation poles and clusters' would enhance the complementarity of the national and regional policy mix (recall exhibit 10 and 6), especially when these poles, clusters or valleys include both knowledge institutions and companies. The quality of programme management is based on learning from experiences with SF innovation support in the past. Except Flevoland, the Randstad Provinces (labelled 'Science and Service Centres') do not have much experience in this respect.

Exhibit 12 below provides a summary of the overall conclusions concerning the Structural Fund interventions of the current period in favour of innovation and knowledge.

Exhibit 12: main outcomes of innovation and knowledge measures

Programme or measure	Capability	Added value
SPD South, obj.2 measure 2.1	<ul style="list-style-type: none"> • 1.339 companies got support in access to finance, but it is less than targeted; • 237 new cooperations/clusters have been realised; • 512 firms have participated in ICT/R&D projects; • 402 promotion activities have taken place 	<ul style="list-style-type: none"> • Large impact on the generated new product innovations; • direct impact in number of jobs are lower then hoped for, • and also the number of start-ups were disappointing
SPD North NL, obj.2 Measure 3b 'knowledge Innovation, sustainability'	<p>Following output indicators way above targets:</p> <ul style="list-style-type: none"> • SMEs supported by NIOFund; • and SMEs in innovative trajectories 	<ul style="list-style-type: none"> • Increased Innovativeness SMEs; • Great impulse towards innovation oriented regional policy by adding this new measure on innovation & knowledge
SPD Urban NL, obj.2	<ul style="list-style-type: none"> • 842 SMEs have received financial support 	<ul style="list-style-type: none"> • The targets for job creation have proofed difficult to reach.
SPD East NL, obj2 Priority2	<ul style="list-style-type: none"> • 300 participants in ICT/R&D projects • 870 participants in cluster/cooperation projects 	<ul style="list-style-type: none"> • 345 innovative products and processes generated; • 146 start-up created • 1.433 jobs created
SPD Flevoland NL, obj.1	<ul style="list-style-type: none"> • R&D infrastructure investments; • Success full innovation awareness raising activities 	<ul style="list-style-type: none"> • Increased strength of public R&D infrastructure; • Increased innovation awareness of companies

5 Regional potential for innovation: a prospective analysis

This section of the report seeks to summarise and draw conclusions from the analysis of the preceding sections, available studies and interviews and focus groups carried out for this study in order to provide a prospective analysis of the regional innovation potential. In doing so, the aim is to provide a framework for orientations in terms of future Structural Fund investments in innovation and knowledge.

5.1 Factors influencing regional innovation potential

A few major global trends that have been relevant for the last few decades and will remain relevant for Dutch regions in the coming years are (see also exhibit 13):

- Globalisation of business R&D (especially relevant for the large core R&D labs of Dutch multinationals in the South)
- Decrease of manufacturing employment (especially relevant in the South)
- Increasing demand for high-educated human resources (especially challenging for the North, East and South)
- Digitisation of society (relatively high opportunity for the least dense populated and less centrally located regions in the North)
- Ageing population (most urgent for the province of Limburg)

The impact will be felt in all regions in the Netherlands, but there are some differences, e.g. the impact of aging and decrease in manufacturing employment will be more intense for Limburg¹⁹ than in Flevoland.

The general trend of globalisation also has more specific sub-trends. For instance, the globalisation of research and R&D (that is, business R&D). The trend for Dutch multinationals that still have their core R&D units in the Netherlands (e.g. Philips, Shell, DSM, Océ) is not a very dramatic ‘shift’ abroad, but gradually the Netherlands is losing ground as the sole R&D-core for the whole corporation, since the growth of R&D in foreign subsidiaries is growing faster than at home²⁰. Besides the efforts to increase R&D by promoting start-ups and academic spin-offs, it is of both national and regional importance to try to increase the embeddedness of the present major core-R&D activities of large multinational companies. It is the focus and mass of these R&D activities that is very valuable. Recent developments concerning the high-tech campus around Philips core R&D lab in Eindhoven²¹, but also the plans to strengthen the Campus of DSM and to start such a development around Océ in Venlo deserve great interest from RTDI policy makers in the Netherlands, because innovative networking nodes can be a good remedy to further globalisation of R&D activity.

¹⁹ See several studies commissioned by LIOF and ETIL.

²⁰ See: Maarten Cornet (2001) CPB Document 14 “The location of R&D in the Netherlands: Trends, determinants and policy”; and IPTS (2006, forthcoming) “Internationalisation of European ICT activities.

²¹ See: <http://www.hightechcampus.nl/home.html>

The Innovation Platform and the national government has performed a review of key-area's of technology (sleutelgebieden), technology area's for which The Netherlands has a strength and that is worth while to invest in for the future (Ministry of EZ, 2005). The four main key-area's identified are: Flowers & Food, High-tech systems and materials, Water, and Creative Industries. The Innovation Platform also mentioned two upcoming key-areas concerning service industries: Pension & Social assurance, and 'Peace & Justice' (The Hague).

The review of key-areas of technology (sleutelgebieden) by the Innovation Platform did not refer to geographical key-area's. However, regions have been asked in the framework of the new territorial oriented economic policy to show where they could contribute regarding these technology fields. Two territories are clearly identified in the "Peaks of the Delta" (EZ, 2004) regarding their potential with respect to RTDI: **Twente within the Triangle** of the universities of the East, and the 'brainport' of **Eindhoven within the South-east** of the Netherlands. This corresponds with the analysis and conclusion in earlier sections of this report.

Exhibit 13: factors influencing innovation potential by type of region

Region	Main factors influencing future innovation potential
North (Learning)	<ul style="list-style-type: none"> • The extent to which Groningen can develop, and diffuse and integrate its role as the central node of public knowledge of the North. • The uptake of ICT and broad band services
East (Learning)	<ul style="list-style-type: none"> • The ability of Twente to become an internationally attractive location for R&D • The cooperation between, and the ability to utilise the knowledge concentrations in Twente, Wageningen and Nijmegen.
West/Randstad (Science&Service Centre)	<ul style="list-style-type: none"> • The ability to enhance research and innovation in new and old service sectors • The ability to utilise the public knowledge concentrations
South (Learning)	<ul style="list-style-type: none"> • Open Innovation: the increased importance of cooperation and networking in research and innovation; the growth of activities and policies addressing Campus mode of clustering around major private R&D sites • The extent to which manufacturing activities, including R&D will globalise towards Asia

5.2 A prospective SWOT appraisal of regional innovation potential

The innovation potential of the three provinces in **North** Netherlands (see exhibit 14) is largely dependent on Groningen and its public knowledge base. Expertise in biomedical and nanotechnology at Groningen University are potential areas for generating business spin-offs. In the public utility domain energy technology and water purification are promising areas. Economic potential in the less technology intensive sectors and in the more remote places could benefit from enhanced ICT infrastructure developments in combination with policies aimed at generating new ICT service companies (broadband infrastructure and services).

The innovation potential of **East** Netherlands is based on the concentration of research activities in Twente, Wageningen and Nijmegen. On its own, each of these concentrations may lack sufficient critical mass in an international perspective. Therefore, the triangle cooperation strategy and the promotion of valleys is an important policy opportunity.

The innovation potential of the four **Randstad** Provinces in the West of the Netherlands are best placed for innovation in service industries. Two potential high-tech hotspots within the Randstad are the two smaller cities with universities: Delft (water technology) and Leiden (biotech). In the large cities of Amsterdam, Rotterdam, The Hague and Utrecht ICT is one of the main innovative sectors with innovative potential that could spill over to more traditional service sectors. The concentration of public knowledge and research in the Randstad could be transformed into economic potential, but not without increased and concerted policy efforts. At present the spin-off from the public research base is still relatively weak compared to other Dutch regions.

The **South** of the Netherlands and especially the South-east has the best innovation potential in the Netherlands. A potential that has been appraised by the national government in terms of: 'Technological Top Region', and 'Brain-port' (referring to the Eindhoven area). The two most important future technological fields for the South are: 'mechatronics', and Life Science/medical. The relatively low represented public R&D in the South is a weakness, but the cross-border cooperation with foreign public R&D concentrations within the Eindhoven, Leuven, and Aachen triangle could prove to be helpful in this respect.

Exhibit 14: Innovation and Knowledge SWOT

North Netherlands (learning-region)	Opportunities	Threats
Strengths	<ul style="list-style-type: none"> Groningen University expertise in biomedical-, genetic- and nanotechnology; Promising areas of research are water purification and energy technology 	<ul style="list-style-type: none"> Reduced public support for large public investments; Presence of foreign innovative subsidiaries
Weaknesses	<ul style="list-style-type: none"> Development of ICT infrastructure and service-start-ups 	

East Netherlands (learning region)	Opportunities	Threats
Strengths	<ul style="list-style-type: none"> Electro-metal industries and technology in Twente Food industries and technology (Wageningen) Triangle of valleys: Twente, Wageningen, Nijmegen 	<ul style="list-style-type: none"> Off-shoring of Manufacturing activities
Weaknesses	<ul style="list-style-type: none"> Fragmented urban structure 	

Randstad (science & services centre)	Opportunities	Threats
Strengths	<ul style="list-style-type: none"> TU Delft (water) ICT-software and services Bioscience (Leiden) Creative industries; 	<ul style="list-style-type: none"> many pockets of innovative potential with the risk of selecting too much clusters without critical mass
Weaknesses	<ul style="list-style-type: none"> innovation in other service sectors; Dependency on public R&D institutes with low spin-off potential 	

South Netherlands (learning-region)	Opportunities	Threats
Strengths	<ul style="list-style-type: none"> Life science and medical Mechanics (Eindhoven-Venlo) Development of high-tech campus's around large business R&D labs (Philips & DSM) 	<ul style="list-style-type: none"> Globalisation of manufacturing and business R&D activities
Weaknesses	<ul style="list-style-type: none"> Low presence of public R&D institutes 	<ul style="list-style-type: none"> Fragmented urban structure, e.g., lack of metropolitan atmosphere in Eindhoven

5.3 Conclusions: regional innovation potential

Policy headline 1: The North should shift the focus from development policy towards innovation policy

- The North has had a long tradition in focussing on traditional regional development policy, e.g. involving large infrastructural projects. This trend has been changing, as for instance the added measure on innovation in the current Structural Fund Programme has indicated. But, the focus should be even more on innovation and ICT infrastructures and services. The geographical focus in the North should be Groningen and its public knowledge base.

Policy headline 2: In order to increase national innovation performance the National research and innovation policy should invest more in public R&D in South Netherlands, especially in the field of mechatronics and Life Science

- Since national policy makers at both the ministries of Economic Affairs and Education and Science have adopted the motto to support excellence and strength, the region with the strongest innovative potential deserves more public R&D and knowledge infrastructure. This could provide a good structural demand driven RTDI infrastructure that could help to exploit and maintain the strength in private R&D and innovation capabilities.

Policy headline 3: In the Randstad there is a need to develop a regional innovation support infrastructure in order to enhance innovation in service industries and utilisation of the concentration of public research

- In creating this institutional infrastructure copying the structures and tools of the East and South may not be appropriate for the different needs of the Randstad. The public research infrastructure is strong, but the private side of the science-industry linkages is rather weak, which asks for specialised intermediary organisations. Policy instruments in this ‘Science & Service Centre’ need to be adapted to service industries. So called ‘creative industries’ is a relatively new field with high potential.

Policy headline 4: In the East and the South the strategy of triangles and valleys are promising

- The South and the East seem to be the regions that have the best potential to generate and support innovation. A conclusion that is in line with the view of national policy makers as set out in the document ‘Peaks in the Delta’, and with the regional policy makers that have recently formulated their new programmes. It is no coincidence that the titles of the new programmes in both regions explicitly refer to knowledge and technology, while the titles of the other ‘Peaks in the Delta Programmes’ mostly refer to locational benefits. The strategy of the triangle and the valleys are promising, because it is a good framework for integrating regional, national and international knowledge, innovation potential and policy options. Moreover, since the policy field of “Innovation poles and clusters” do not have a high priority or large budget at the national policy level, developing this policy field with Structural Fund support would improve the policy mix (see paragraph 3.2).

6 Future priorities for Structural Fund support for innovation and knowledge: options for intervention

This section concludes the analysis with a number of recommendations for future investment priorities for Structural Funds in Netherlands. It summarises the key lessons from the analysis and translates them into strategic (sub-section 6.1) and operational (sub-section 6.2) options for interventions of Structural Funds in the Netherlands during the next programming period.

In each region North, East, West and South there are good opportunities and appropriate options to support innovation and knowledge. The absorption capacity is large in the East and especially in the South.

Because the Randstad does not have much experience in innovation support, there is a danger that the present support-infrastructure in the Randstad will focus on the softer, non-technological and non-R&D oriented innovation support measures, and on real-estate, human resources and the attractiveness of the major cities. Investments in human resources and equal opportunities as has been done so far in the Randstad may be very important with respect to specific urban problems, but in terms of innovation performance doubts can be raised about its effectiveness. It could still not be too late to find policy answers to the relatively low level and negative trend in business R&D, especially by promoting Science-Industry linkages, and enhancing innovation and R&D in service industries.

6.1 Strategic orientations for Structural Fund investments in innovation and knowledge

Key conclusion 1 : Structural Fund interventions in the Netherlands have mainly supported existing regional strengths

An interesting observation that emerged from the analysis is that it seems that Structural Fund interventions in the Netherlands mainly support existing regional strengths. (Flevoland is strong and invests in public R&D, the South is strong and invests in business R&D clusters, the Randstad is strong and invests in life-long learning and human resources). This seems in line with the national policy to invest in existing strength, and it is in line with the Structural Fund framework regarding absorption capacity, but the line of reasoning is contradictory to the systemic characteristics of well functioning regional innovation systems, that incorporate both public and private knowledge organisations. Enhancing focus and critical mass, by supporting specialisation in certain sectors or technological fields is very relevant, but the focus and mass of the support should not be limited to only one isolated type of resources or actors. Relative, and regional specific RTDI weaknesses of the regions are often not explicitly addressed in the regional Structural Fund priorities, e.g. Business R&D is weak in the Randstad, and Public R&D is relatively weak in the South.

Recommendation 1 : Regions should not neglect the relatively weaker elements of their innovation system: the Randstad should address the relatively low business R&D expenditure; the South should address the relatively low public R&D expenditures

For the Randstad this would first of all imply that in the next programme period a considerably higher RTDI intensity of the SF intervention is needed. Policy instruments addressing the exploitation of the many public research institutes are very relevant in the Randstad with its 'Science & Service Centre characteristics. New SF initiatives should be coordinated with the policy of the Ministry of Education, Culture and Science in order to complement their support which is focused on the public side of Science-Industry relations. E.g., government research labs are asked to generate spin-offs and transfer technologies to SMEs. Structural Fund interventions could focus on the private side of Science-Industry relations, and SMEs in particular. Moreover, the intervention should not only address manufacturing industries but also service industries. The cluster policy tool which was identified as a case of best practice in the South, could also become good practice in the Randstad. However, it is recommended to adapt the instrument to the regional specificity, by addressing innovative services and explicitly promote involving knowledge institutions.

For the South this recommendation would imply for instance that besides continuation of the successful cluster measurement the Structural Fund interventions could support in the new period the public research base. Especially in Mechatronics and Life Science; the two technological fields with the largest potential in the South.

Key conclusion 2 : In the Randstad there is a relatively weak regional innovation support infrastructure

Although the Randstad is the core of the Dutch economy, the expertise, size, range and experience of the regional RTDI policy, support structures and organisations in the Randstad are more limited than in the rest of the Netherlands: *"The network organisations in the Randstad appear to be less well developed than they are in the South-eastern and Eastern Netherlands"* (In 'Peaks in the Delta', p. 41). This can be explained by both National and EU policy. E.g., the Randstad Provinces lack a Regional Development Company. Furthermore the Randstad provinces do not have much experience with Structural Funds. Anticipating a larger share of support for innovation and knowledge and an increase of the share for the Randstad it is very important to provide support to improve governance.

Recommendation 2 : Support the strengthening of the regional innovation support infrastructure in the Randstad

Especially for the Randstad it would be important to pursue strategic initiatives such as regional innovation strategies and pilot actions. Such strategic initiatives would help to develop the necessary regional support structures, learning-experience, cooperation, initiatives and partnerships. It would also provide the flexibility to experiment in the design of policy interventions, e.g. instruments that are specifically designed to foster innovation in service industries. One option is to support the

establishment of a regional development company in the Randstad, since it is the only region in the Netherlands that does not have one. A second concrete possibility is to strengthen the network organisations such as: Knowledge alliance Zuid-Holland, UNIE, and Knowledge Circuit. Another concrete option is to provide learning opportunities to policy makers by organising regional, national and international workshops where inexperienced programme managers and potential project initiators, applicants, and participants can learn from experienced programme managers, and experienced project initiators, applicants and participants.

Key conclusion 3 : The ‘cluster, triangle and valley’ approach of the regional strategies and programmes developed in the National framework of the Peaks in the Delta provide a good basis for Structural Fund interventions for innovation and knowledge

In the regional strategies and programmes written in the framework of the new territorial economic policy perspective regions have developed concepts such as ‘triangle, valley, and campus’, which can be headed under the name of ‘Innovation poles and clusters’. Since the policy field of “Innovation poles and clusters” do not have a high priority or large budget at the national policy level, developing this policy field with Structural Fund support would improve the policy mix.

Recommendation 3: Strengthen the policy field of “Innovation poles and clusters” with systemic measures under the new Structural Fund programmes

6.2 Operational guidelines to maximising effectiveness of Structural Fund interventions for innovation and knowledge

Key conclusion 4 : Poor availability of statistical indicators and analysis regarding innovation at regional level

Very little attention is devoted to innovation and knowledge at regional level from national organisations that provide intelligence to national policy makers (E.g. CBS, NOWT, AWT, CPB). In all the major annual or bi-annual intelligence sources (such as ‘Knowledge and Economy’ published by CBS) regional data is almost absent. A centralised and standardised approach towards collecting and diffusing statistical data and indicators on the knowledge economy at regional level is necessary in order to compare, monitor and analyse regional needs, policy impact and progress in a standardised way. E.g. regionalised results on the indicators of the Community Innovation Survey would strengthen the intelligence needed to improve regional innovation policy. The last few years some individual regional initiatives have tried to overcome this deficit, with own surveys or benchmark studies, but diversification and a bottom-up approach is neither very effective nor efficient.

Recommendation 4: Avoid duplication and enhance concerted or centralised actions concerning regional innovation indicators in order to promote policy learning

The last time that the national bureau of statistics (CBS) had published regional innovation profiles and addressed the innovative performance of SMEs is 6 year ago when several regions were engaged in a RIS or RITTS. In a collective effort several Provinces ordered and paid for this ad hoc publication. New Community Innovation Survey data which can be regionalised for the Netherlands will become available in 2006, but without a collective or central (national) initiative, it may not lead to publications on regional innovation profiles or the performance of SMEs.

Finally, a summary of recommendations regarding priorities for investments in knowledge and innovation is provided in exhibit 15. In the last column a indicative budget is estimated based on the regional division proposed by the Dutch government and based on the assumption that the RTDI intensity of the new programming period will be twice as large as in the current period ($2 \times 2,5\% = 5\%$). A second indication (between brackets) is based on the assumption that 20% of the Structural Funding involves RTDI.

Exhibit 15 Summary of recommendations on investments priorities

Region or group of regions	Strategic focus	Priority measures	Indicative financial resources for RTDI
North Netherlands (learning region)	<ul style="list-style-type: none"> Promote innovation clusters (territorial and technological focus) with a core node in Groningen Promote Information Society Technologies 	<ul style="list-style-type: none"> Support the development and exploitation knowledge in the fields of biomedical and energy Support for ICT infrastructure and ICT companies 	0.6 MEUR a year (2.4 MEUR)
East Netherlands (learning region)	<ul style="list-style-type: none"> Promote innovation clusters utilising the knowledge concentrations 	<ul style="list-style-type: none"> Promote mobility of researchers in order to enhance cooperation in the triangle Cluster measurement 	1.0 MEUR a year (4.2 MEUR)
Randstad (Science & Service Centre ; Noord-Holland, Zuid-Holland, Utrecht, Flevoland)	<ul style="list-style-type: none"> Enhance research and innovation in service industries Promote innovation clusters (territorial and technological focus); Boost co-operation between the public R&D and industry 	<ul style="list-style-type: none"> Promotion of innovation in the service sector; Promote spin-off and technology transfer, and link SMEs to the public research base Support for innovation policy-infrastructures and intermediates 	2.3 MEUR a year (9.0 MEUR)
South Netherlands (learning region)	<ul style="list-style-type: none"> Strengthen the public research sector Promote innovation clusters and campuses (territorial and technological focus); Boost co-operation between the public R&D and industry 	<ul style="list-style-type: none"> Promote systemic initiatives in the field of mechatronics, and medical & life sciences Cluster measurement, involving knowledge institutions 	1.3 MEUR a year (5.4 MEUR)

Appendix A Methodological annex

A.1 Quantitative analysis of key knowledge economy indicators

A 1.1 Factor analysis

In order to analyse and describe the knowledge economies at regional level in the EU, the approach adopted was to reduce and condense all relevant statistical information available for a majority of regions. The approach involved firstly reducing the information from a list of selected variables (Table 1) into a small number of factors by means of factor analysis.

Table 1. Reduction of the dataset (215 EU-27 regions) into four factors by means of factor analysis

	The 4 factors			
	F1 'Public Knowledge'	F2 'Urban Services'	F3 'Private Technology'	F4 'Learning Families'
Higher education (HRSTE), % of population completed higher education degree, 2003	.839	.151	.190	.184
Knowledge workers (HRSTC, core: % of population that has an S&T education AND is occupied in the research sector), 2003	.831	.164	.267	.327
High-tech services (% of employment, 2003 (se_kis_ht: Knowledge-intensive high-technology services: NACE Rev. 1.1 codes 64, 72, 73)	.575	.367	.428	.323
Public R&D (Expenditures as % of GDP (HERD+GOVERD), 2002	.543	.431	.275	-.195
% Value-added services (% share of services in total gross value added at basic prices at NUTS level 2 in MEUR, Nace g_p, 2002	.323	.869	.002	.121
% Value-added industry (% share of manufacturing industry in total gross value added at basic prices at NUTS level 2 in MEUR, Nace c_to_f, 2002	-.265	-.814	.386	-.061
Government (Employment in public administration as % in total employment, NACE Rev.1 codes 75 and 99, 2003	-.217	.745	.124	-.175
Population density , 2002 per square Km	.380	.402	.043	.038
High-tech manufacturing (High-tech and Medium/high-tech manufacturing employment, % of total employment, 2003 (NACE Rev. 1.1 codes 24, 29 to 35)	-.073	-.331	.873	-.089
% Value-added agriculture (% share of agriculture in total gross value added at basic prices at NUTS level 2 in MEUR, Nace a_b, 2002	-.222	-.350	-.672	-.198
Business R&D (Business R&D expenditures as % of GDP (BERD), 2002	.335	-.050	.664	.267
S&T workers (HRSTO, occupation), % of population that has an occupation in S&T, 2003	.560	.178	.589	.382
Youth (% share of population under 10 years of age, 2001	-.237	.060	-.015	.868
Life-long learning (% of adults having recently enjoyed training or courses, 2003	.472	-.009	.165	.703
Activity rate females (% of all ages, 2003	.418	-.227	.281	.620

Note: Principal Component Analysis. Rotation Method: Equamax with Kaiser Normalization, a Rotation converged in 9 iterations. Main factor loadings are highlighted in bold. Source: MERIT, based on Eurostat data, mostly referring to 2002 or 2003

Based on the variable with the highest factor loadings we can characterise and interpret the four factors and give them a short symbolic name:

Public Knowledge (F1)

Human resources in Science and Technology (education as well as core) combined with public R&D expenditures and employment in knowledge intensive services is the most important or common factor hidden in the dataset. The most important variables in Public Knowledge are the education and human resource variables (HR S&T education and core). Cities with large universities will rank high on this factor. One interesting conclusion is that public and private knowledge are two different factors (F1 and F3 respectively), which for instance has implications for policy issues regarding Science-Industry linkages. Public R&D and higher education seems especially related to high-tech services, whereas Business R&D especially serves high- and medium-high-tech manufacturing.

Urban Services (F2)

This second factor contains information on the structure of the economy. It is well known that industrial economies are quite different from services based economies. It is not a matter of development per se, because in the European regions the variety of economic structure is very large and for a large part based on endowments and path dependent developments like the extent to which government administration is located in a region or not. This factor takes into account the differences between an industrial area and a service based area including the public administration services of the government. Another observation is that there are two different 'urban' factors, indicating that academic centres not necessary co-locate with administration centres. What may not be surprising is that the Urban Services factor is not associated with R&D, since R&D is more relevant for innovation in manufacturing than for service industries.

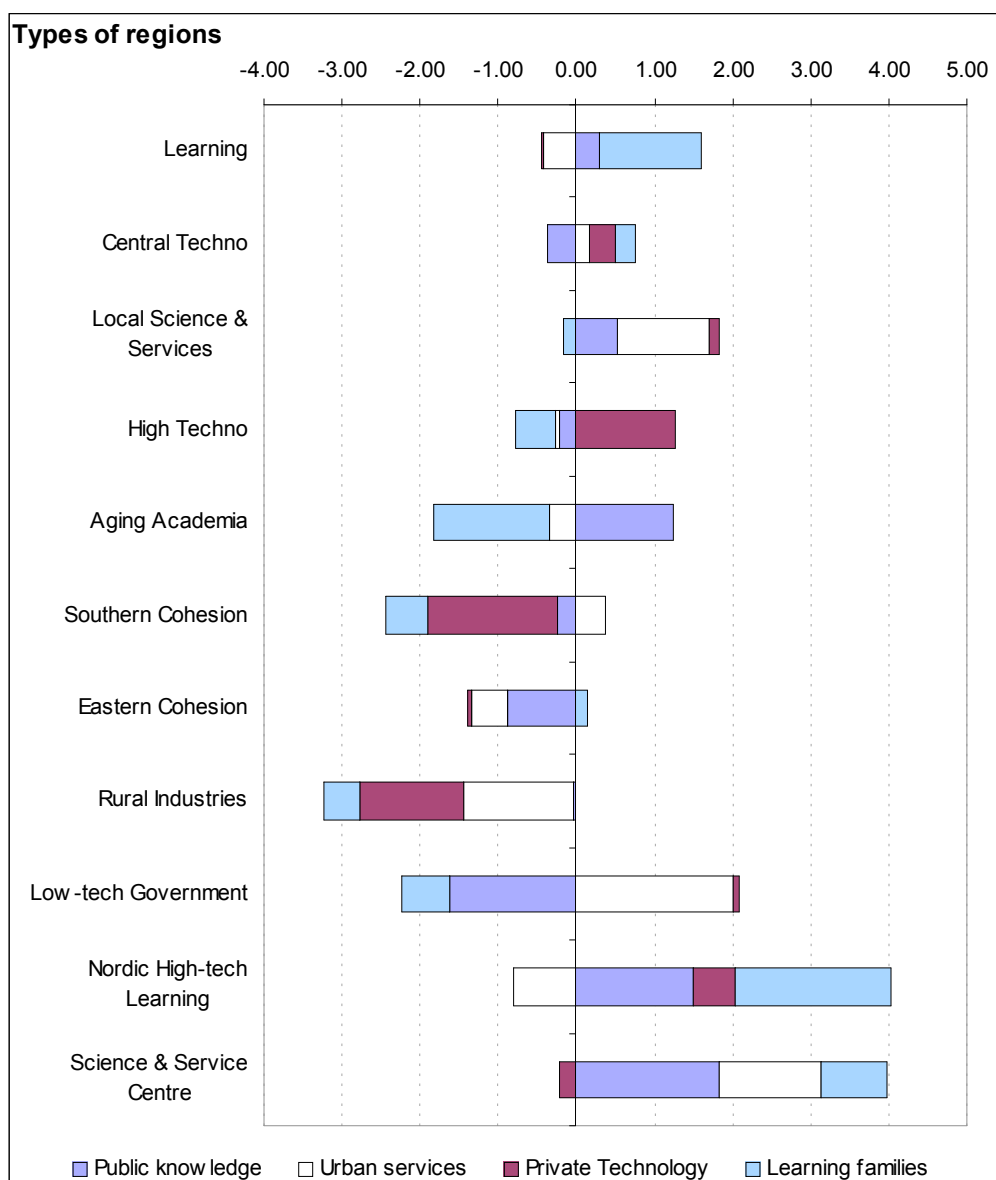
Private Technology (F3)

This factor contains business R&D, occupation in S&T activities, and employment in high- and medium-high-tech manufacturing industries. A countervailing power is the existence of agriculture in the region. One interpretation could be that agricultural land-use goes at the cost of possibilities of production sites. Another interpretation is that agriculture is not an R&D intensive sector.

Learning Families (F4)

The most important variable in this factor is the share of the population below the age of 10. Locations with relatively large shares of children are places that are attractive to start a family. Possibilities for Life Long Learning in a region seems associated with the lively labour participation of the mothers of these youngsters. The Learning Families factor could also be interpreted as an institutional factor indicating a child-, learning- and participation- friendly environment, or even a 'knowledge-society-life-style' based on behavioural norms and values that are beneficial to a knowledge economy.

A 1.2 Description of the 11 types of EU regions



Note: The bars are stapled factor-scores showing the deviation (1=standard deviation) per factor from the average of 215 EU regions (0.00). Source: MERIT based on Eurostat data.

1 Learning

The Learning regions are first of all characterised by the high score on the factor 'Learning Families', and the three main components of this factor: life-long-learning, youth and female activity rate. On the other factors the regions are close to the regional average. Unemployment is on average the lowest compared to the other EU regions. Employment in the government sector is limited. GDP per capita is rather high. The regions are located in Austria, Ireland, the Netherlands, Sweden and the UK. There are many similarities with the Nordic High-tech Learning regions, but the business sector in the Nordic version invest more in R&D.

2 Central Techno

This is a rather large group of regions located mostly in Germany and France with close to average characteristic, but the share of High-tech manufacturing is rather high. The factor-scores as well as GDP-per head is slightly above the regional average, except for the Public Knowledge factor which is slightly lower.

3 Local Science & Services

This group of regions with diverse nationality consist mainly of capital cities, such as Madrid, Warsaw, Lisbon, Budapest and Athens. These urban area's serve as national centres for business services, government administration, public research institutes and universities. Urban Services and Public knowledge are therefore the strongest factors for this type of region. GDP per capita is on average slightly below the EU25 average, but growing. The low score on life-long-learning is a weakness in most Local Science & Services regions, especially compared to the more wealthy and advanced Science & Service Centres.

4 High Techno

The High Techno regions host many high-tech manufacturing industries. They are mostly located in Germany (e.g. Bayern and Baden-Wurtemberg), some in Italy (e.g. Lombardia and Veneto) and two French regions. This type is very strong in Private Technology and has a high level of GDP per capita. The factors Public Knowledge and especially the Learning Family factor shows a relative weakness, e.g. in life-long-learning. Growth in terms of GDP per capita has been low and unemployment didn't improve much in the previous years.

5 Aging Academia

This group of regions is mostly located in East-Germany and Spain and also includes the capital regions of Bulgaria and Romania. The strength in the Public Knowledge factor is mostly based on the high share of people with tertiary education. The low score on the Learning Family factor is due to little life-long-learning and hosting relatively few children. The unemployment situation has improved, but is still very high.

6 Southern Cohesion

Southern cohesion regions are located in Southern Europe, consisting of many Greek, some Spanish and two Portuguese regions. The low score on the Private Technology factor is striking. There is hardly any high-tech manufacturing nor business R&D. Services is the most important sector, but also agriculture is still a rather large sector. The share of manufacturing industry in value added is very limited. Population density is low, but on average it has been increasing.

7 Eastern Cohesion

Manufacturing industries is the dominant sector, whereas services and agriculture are rather small sectors. This type of region is mostly located in Poland, Czech Republic, Hungary and Slovak Republic. Two Portuguese regions are also included. The Public Knowledge factor is the main weakness of this type of regions. However, the score on the Private Technology factor is close to average, which means that it is much stronger in this respect than the Southern Cohesion regions. Unemployment is high, even compared to Rural Industries and Southern Cohesion regions.

8 Rural Industries

Besides a low per capita GDP, Rural Industries regions have in common a low score on both the factors Urban Services and Private Technology. Population density is very low. The service sector is often very small. Especially agriculture but also manufacturing industries are relatively large sectors. Besides regions in Bulgaria and Romania and Greece, there is also a more nordic sub-group consisting of Estonia, Lithuania and Itä-Suomi

9 Low-tech Government

This type of region, mostly located in southern Italy is characterised by a very low score on Public Knowledge combined with a high share of employment in the Government sector. Unemployment is severe, on average comparable to Eastern Cohesion regions. GDP per capita is however close to the regional average.

10 Nordic High-tech Learning

The Nordic version of the learning regions are typically strong in the Learning Family factor, but this type also has by far the highest business R&D intensity. In contrast with the popular characterisation of Nordic societies, the size of the government administration is the lowest of all the types. The low score on Urban Services is also due to the low population density. A rather unique feature of this type of regional knowledge economy is the combined strength in both the Public Knowledge and the Private Technology factor.

11 Science & Service Centre

The main characteristics of this urban group of regions are the high scores on the Public Knowledge and Urban Services factors. Population density is very high. This type also has the highest GDP per capita and productivity. The variables that are captured by the factor Learning Families also show a score above the regional average, but disappointing is the relatively low presence of high and medium-high-tech manufacturing and the business R&D intensity.

A.2 Qualitative analysis and preparation of country reports

In summary, the country reports were prepared in the following stages:

A first country document was prepared by the core study team in the form of a **template country report**. It contained overall guidance to the country experts and included a number of pre-filled tables, graphs and analysis sections based on information available at EU level.

Next, the core team members and the national experts who were involved in the pilot phase of the project commented completed elements of the templates. Drafted elements and templates were completed and compiled into **first country briefings (draft pilot reports)** by the national experts involved in the pilot phase of the project. These pilot country reports were prepared by experts for Belgium, Greece, Italy, France, and Poland.

Once the five first country briefings were completed, a **final set of guidelines** was prepared by the core team. These guidelines were agreed with the Commission services responsible for this evaluation. Prior to this, all first country briefings were reviewed during the January 2006 and presented to a first meeting of the scientific committee.

The work during the **country analysis phase** included:

- Undertaking a series of key interviews (KI) with policy decision makers;
- Organising a focus group (FG) with key national or regional RDTI stakeholders;
- Collecting additional information and finalising short case studies; and
- Preparing the synthesis notes of these various activities.

The above-mentioned work served as qualitative data and allowed the national experts to compile the draft **country reports**. All reports were subsequently reviewed, checked and finalised by the core team and the consortium members. Once this first check was completed, the core team organised a final peer reading of the document to verify its overall consistency and to ensure a final English language editing of the document. The core team then completed the final editing and layout of the document with a view to publication.

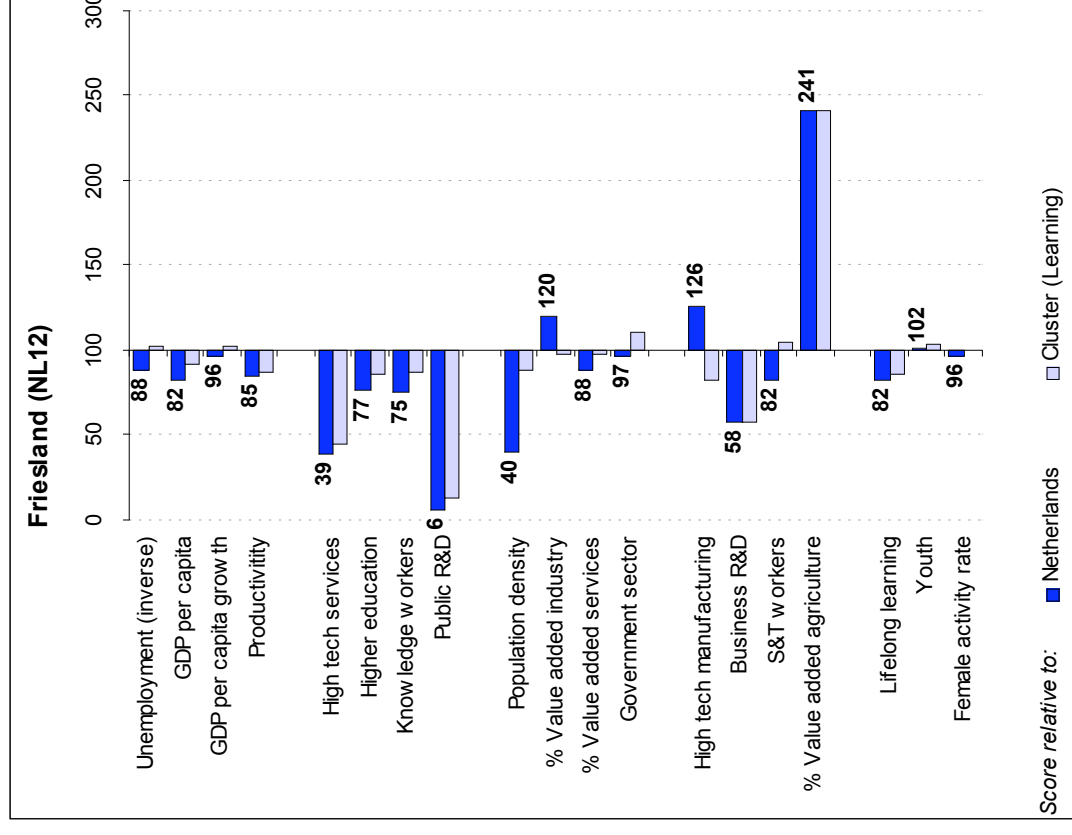
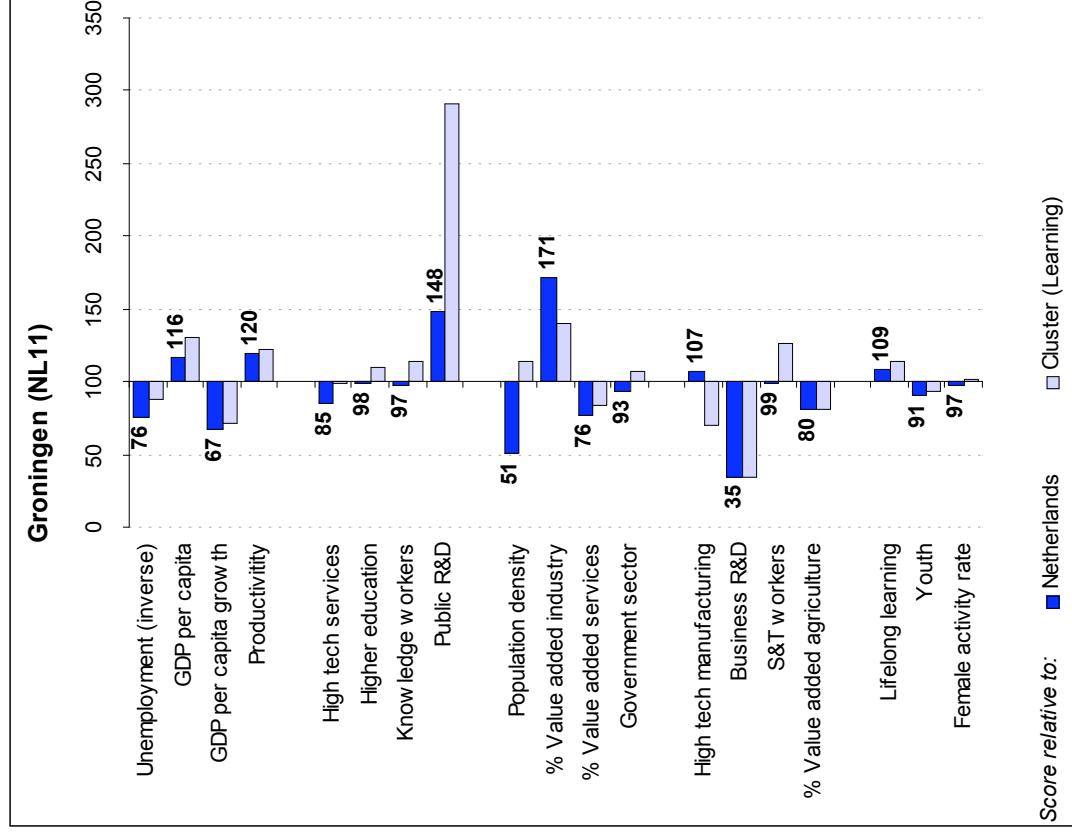
An overall synthesis report of all has been prepared and will be published by the European Commission providing an overview of the issues addressed in each of the 27 country reports produced by the evaluation team.

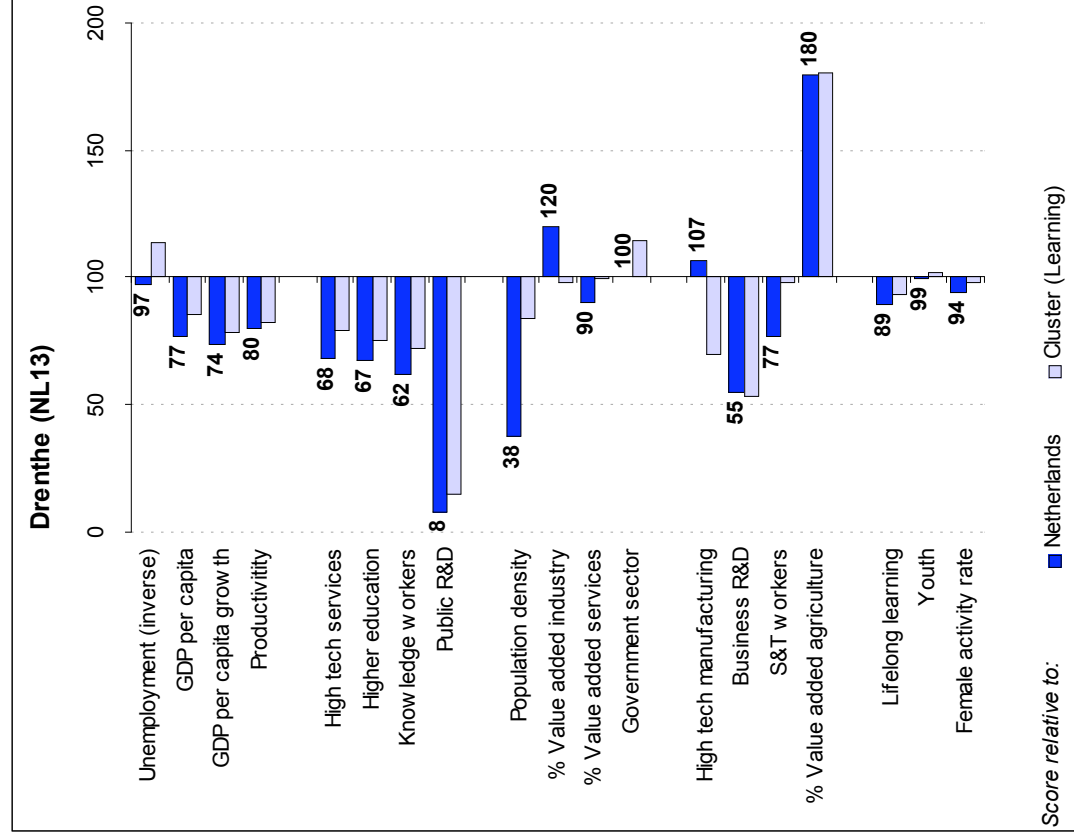
Appendix B Statistical tables and regional scorecards

B.1 Overall quantitative analysis per region in The Netherlands

Economic performance										'Public knowledge'				'Urban services'				'Private technology'				'Learning families'			
Cluster	Un-employment	GDP per capita	GDP per capita growth 1996-2002	GDP per capita growth 2002	Productivity	High tech services	Higher education	Knowledge workers	Public R&D	Population density	% Value added industry		% Value added services		Government sector	High tech manufacturing	Business R&D	S&T workers	% Value added agriculture	Life-long learning	Youth	Female activity rate			
											2003	2002	2003	2002									2003	2002	2003
EU25																									
Regional average	9,2	21170	4,8	4556	3,2	20,7	11,6	0,69	117	27,0	70,9	7,5	6,6	1,24	20,7	2,1	8,7	10,8	48,3						
Netherlands	9,4	18882	4,8	3914	2,8	18,9	10,7	0,49	294	28,9	66,6	7,6	6,5	0,80	19,5	4,3	7,1	10,5	47,2						
Relative to EU25	3,7	25847	5,0	5026	3,7	24,7	14,6	0,79	477	24,9	72,6	6,9	4,1	1,10	28,1	2,5	15,8	12,5	56,3						
	249	122	105	110	117	120	125	114	408	92	102	92	62	89	135	117	181	115	117						
Groningen	1	30028	3,4	6006	3,2	24,3	14,2	1,17	244	42,6	55,4	6,4	4,4	0,38	27,8	2,0	17,1	11,3	54,6						
Friesland	1	21189	4,8	4258	1,4	19,0	10,9	0,05	190	30,0	64,1	6,7	5,1	0,64	23,0	5,9	12,9	12,7	54,1						
Drenthe	1	19823	3,7	4026	2,5	16,6	9,0	0,06	181	29,9	65,7	6,9	4,3	0,60	21,7	4,4	14,1	12,4	52,9						
Overijssel	1	21890	4,8	4322	2,7	19,7	11,8	0,56	329	29,7	67,5	5,4	4,6	1,16	25,0	2,8	14,6	13,0	54,4						
Gelderland	1	22265	4,8	4289	3,7	23,7	14,4	1,17	392	26,2	71,4	6,0	3,9	0,98	28,2	2,4	14,9	12,7	56,4						
Flevoland	1	19133	5,3	3629	6,6	23,0	13,1	1,41	244	16,2	77,3	8,3	2,7	0,47	29,0	6,4	16,6	15,8	61,0						
Utrecht	11	32710	5,8	6101	5,8	33,7	19,5	1,28	841	15,9	83,2	6,4	2,2	0,45	33,9	0,9	17,8	13,0	59,6						
Noord-Holland	11	30197	5,3	5602	3,9	30,5	18,0	0,76	966	16,3	82,3	7,8	1,9	0,91	31,9	1,5	16,6	12,2	58,1						
Zuid-Holland	11	26946	5,1	5219	4,6	25,4	15,3	0,98	1197	20,6	76,3	8,6	3,0	0,67	29,5	3,1	16,8	12,4	55,8						
Zeeland	1	22389	4,1	4505	1,7	18,1	10,4	0,07	209	32,6	63,1	6,0	6,8	0,78	22,5	4,3	14,4	12,3	52,4						
Noord-Brabant	1	25579	5,1	4798	3,3	23,1	13,4	0,38	486	31,4	66,5	5,5	6,8	2,82	26,0	2,1	15,1	12,5	57,5						
Limburg (NL)	1	22605	5,3	4533	2,2	19,8	11,4	0,45	528	29,6	67,8	6,4	7,0	1,41	23,2	2,6	14,6	11,1	52,5						

B.2 Regional Scorecards





The scorecards in this section provide a positioning of Dutch regions relative to the National score and to the average score of the EU cluster of regions they belong to.

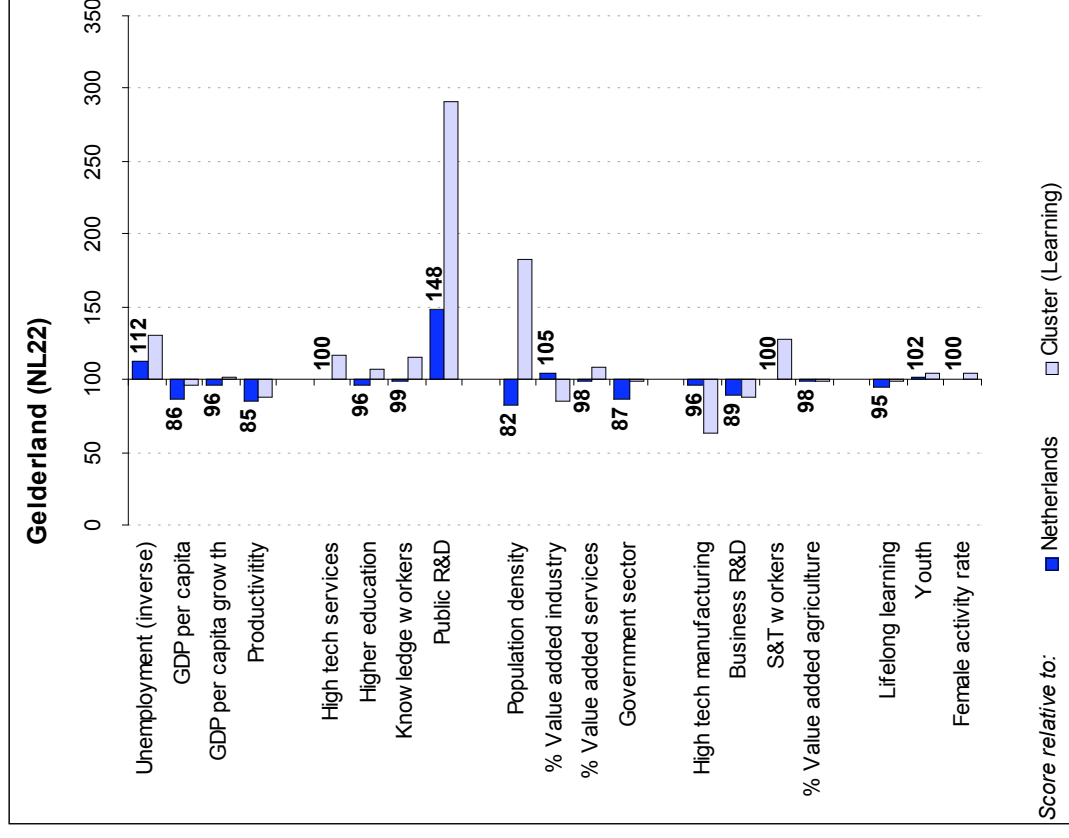
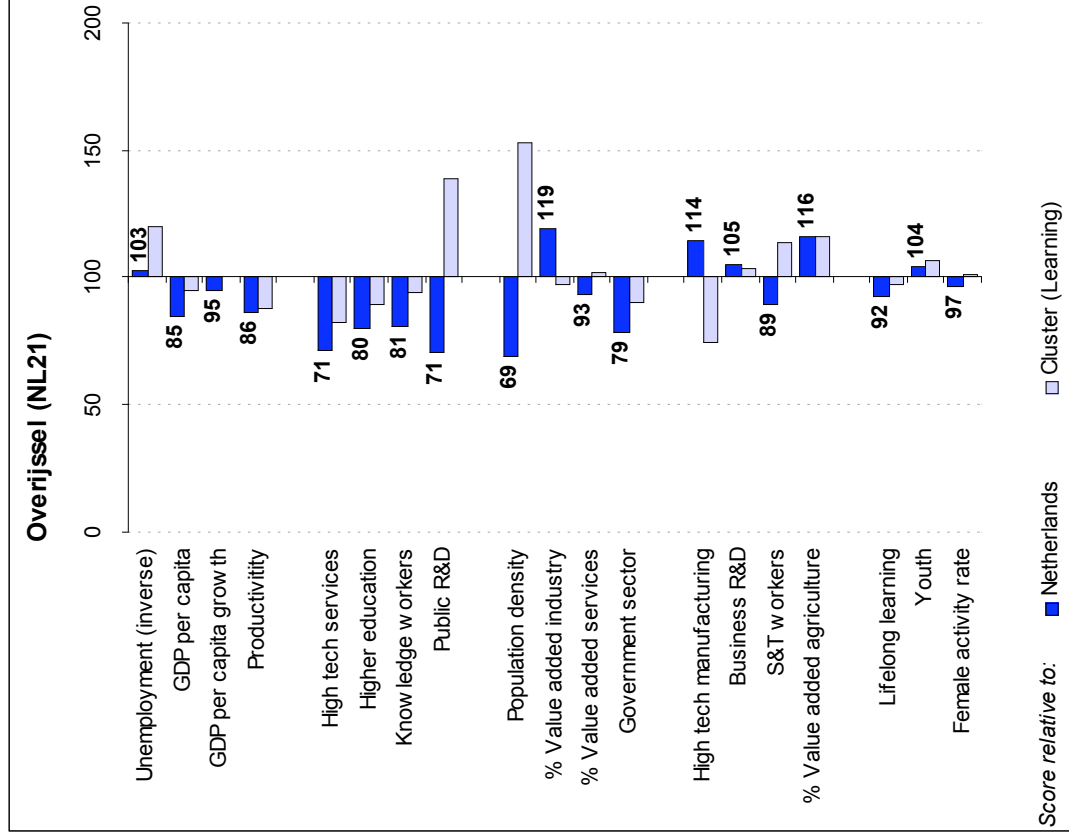
Within the North of the Netherlands the city of **Groningen** is a centre of public knowledge as is indicated by the high score on public R&D. The performance on several indicators, e.g. GDP per capita, productivity, and value added of industry, is strongly influenced by the National gas-mining industry.

The Province of **Friesland** shows a low score on public R&D. In the Dutch context population density is low, but it is very close to the average of the EU Learning regions. The presence of high tech services and the business R&D expenditures are weak points in the profile of the knowledge economy of Friesland. The share of value added of industry in the economy and of high-tech manufacturing is higher than for the country as a whole and higher than the average learning region.

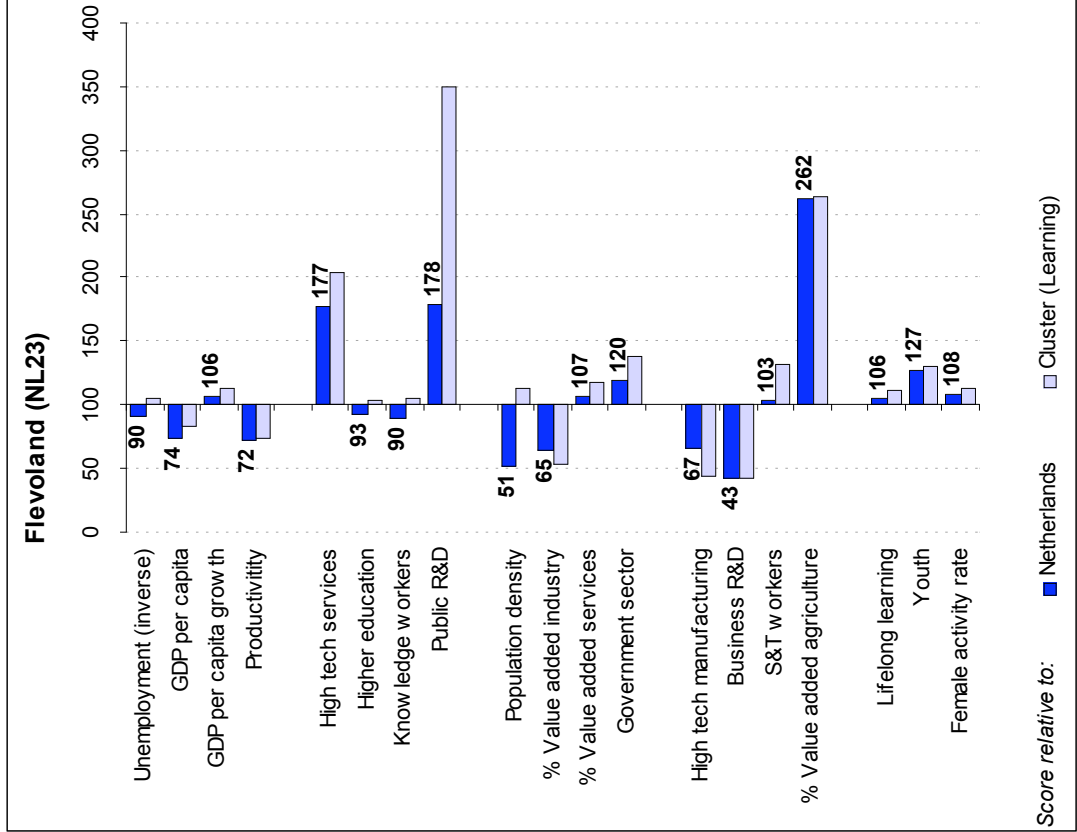
The profile of **Drenthe** is very similar to the one of Friesland. Again the share of high tech manufacturing is better than for the country as a whole, but overall the indicators show a low performance relative to that of the country and the EU cluster of Learning regions. Together with Groningen these three Provinces form North Netherlands.

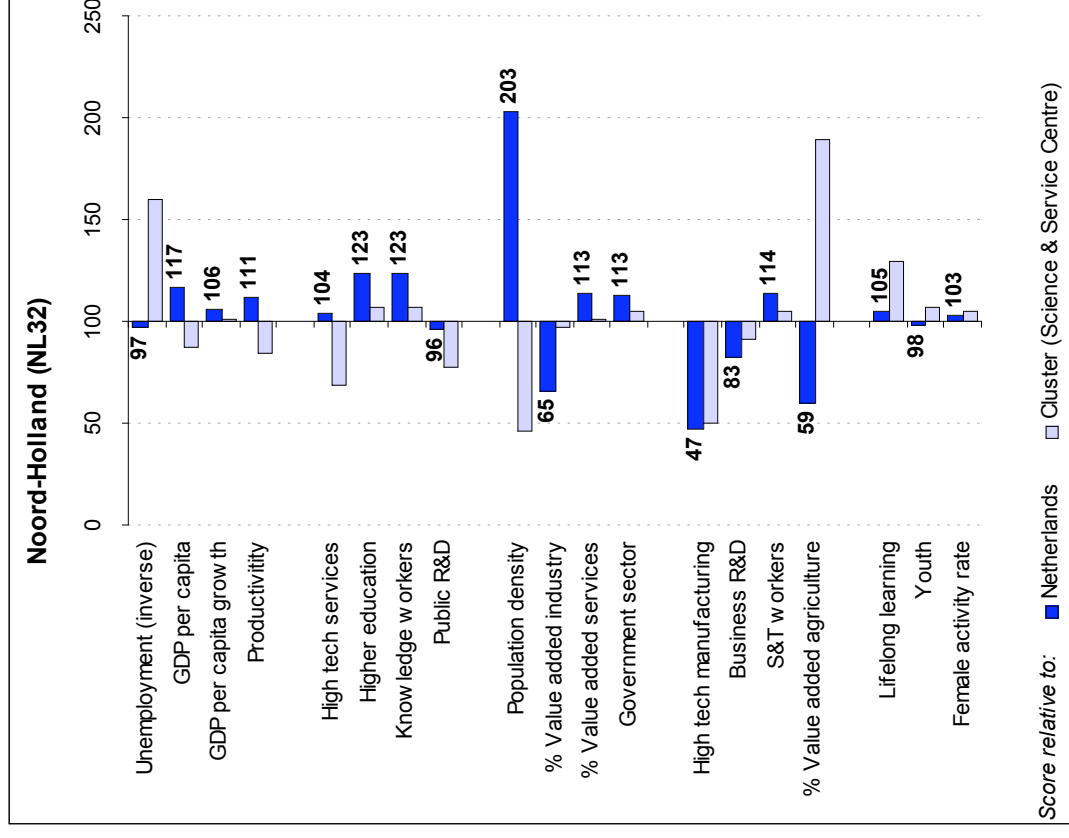
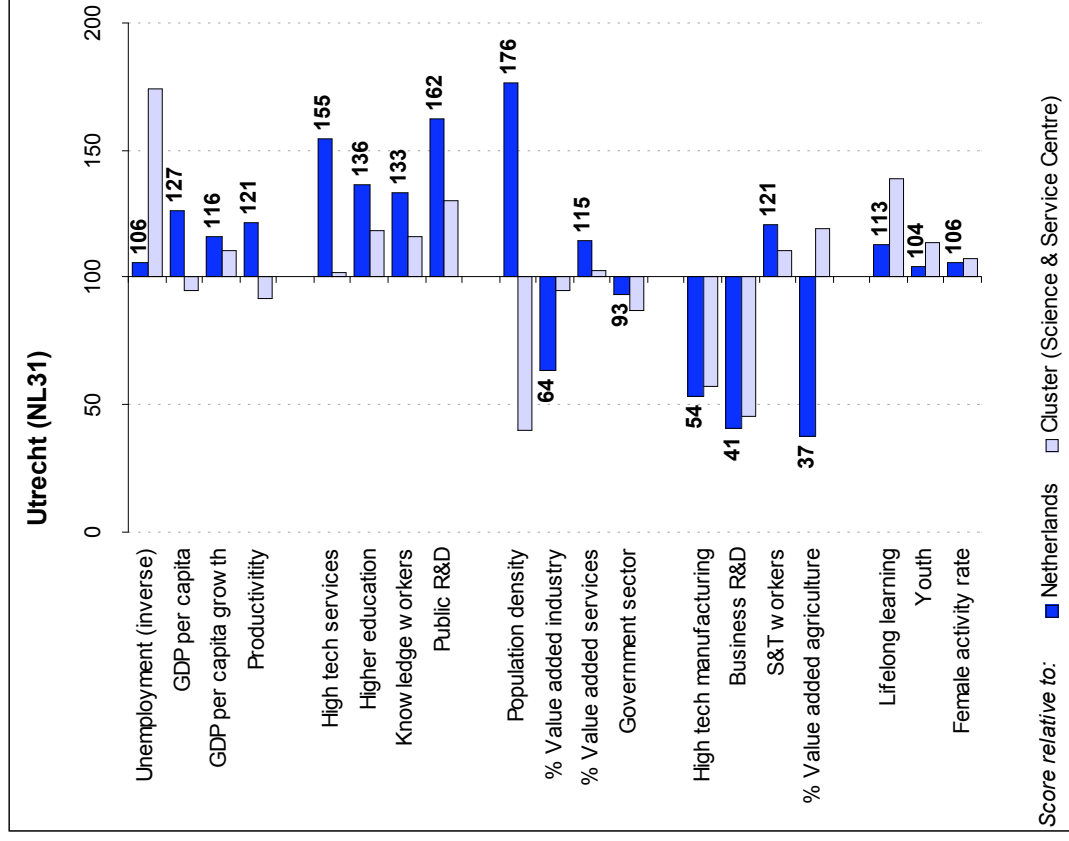
Overijssel and Gelderland make up East Netherlands. For Overijssel the largest knowledge economy disparity with the national situation concerns the indicators of the factor 'public knowledge'. A disparity that Overijssel has in common with Friesland and Drenthe. A relative strong point is high-tech manufacturing and also private R&D is stronger than the National performance and the average of the learning regions in the EU.

Gelderland performs close to the national level of performance on most indicators, with one clear exception: the knowledge economy of Gelderland is very Public R&D intensive.



Flevoland is the most public-R&D intensive Province of the Netherlands. This recent position is based on the location of several government research institutes. A second strength is in high-tech services. However, in terms of GDP per capita and productivity Flevoland has the lowest performance level in the Netherlands. While the profile of Flevoland on the four knowledge economy factors is similar to those of the Science & Service Centre cluster of regions, the cluster analysis resulted in a membership of the learning cluster of regions, because Flevoland has a much lower score on GDP per capita. The high score on the learning Family factor is based on the relative high percentage of the population that consists of children under 5 years of age.

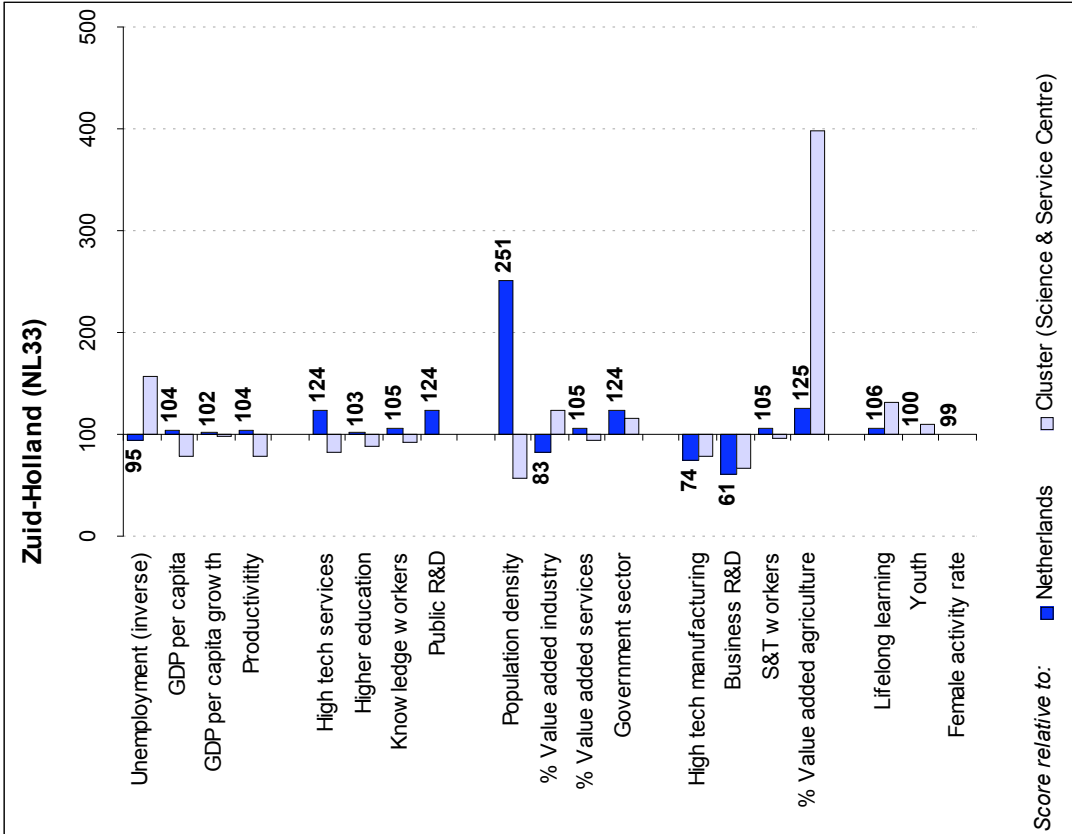




The Province of **Utrecht** has a higher share of people with an academic degree than all other regions in the Netherlands. Also for the indicators on high-tech services, knowledge workers and public R&D Utrecht has a very high score. Especially the ICT service sector takes an important position in the knowledge economy of Utrecht. Contrary to this strength in human resources and high-tech services, high-tech industry and business R&D is very weak.

Noord-Holland (including Amsterdam) also has a strength in higher education and knowledge workers, but it has a very disappointing share of high-tech services and public R&D, e.g. compared to Utrecht. The share of high-tech manufacturing is even lower than for Utrecht. The situation for business R&D is a bit better than in Utrecht, but still behind the score of both the Netherlands and the EU25 as a whole.

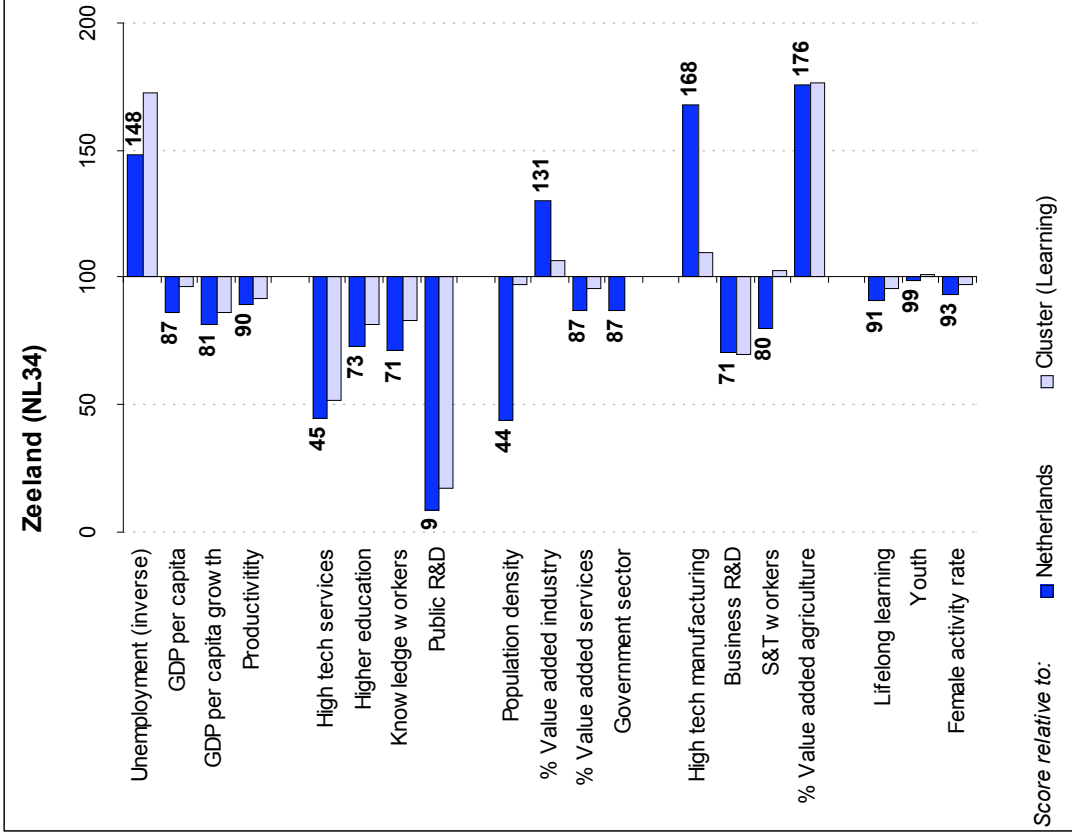
The Province of **Zuid-Holland** has the highest population density and also the largest share of people working in public administrations. The National government is concentrated in the Hague. Strong knowledge economy indicators are high-tech services and public R&D. The universities are located in Rotterdam, Leiden and Delft. The latter one being one of the three technical universities of the Netherlands. Again, high tech manufacturing and business R&D are weak, but not much weaker as in the average Science and Service Centre region in the EU27. Besides a well represented business administration and high-tech services sector, agriculture is also an relative important sector in Zuid-Holland. Especially compared to the average of the EU Science & Service Centre regions.

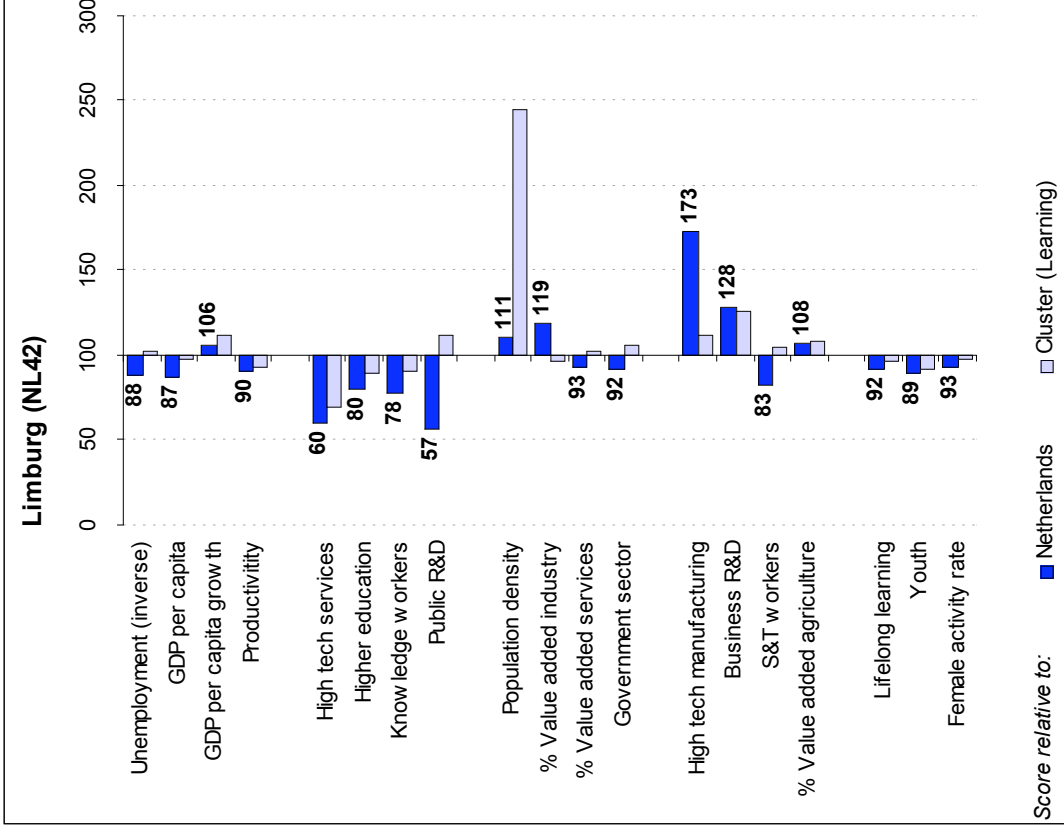
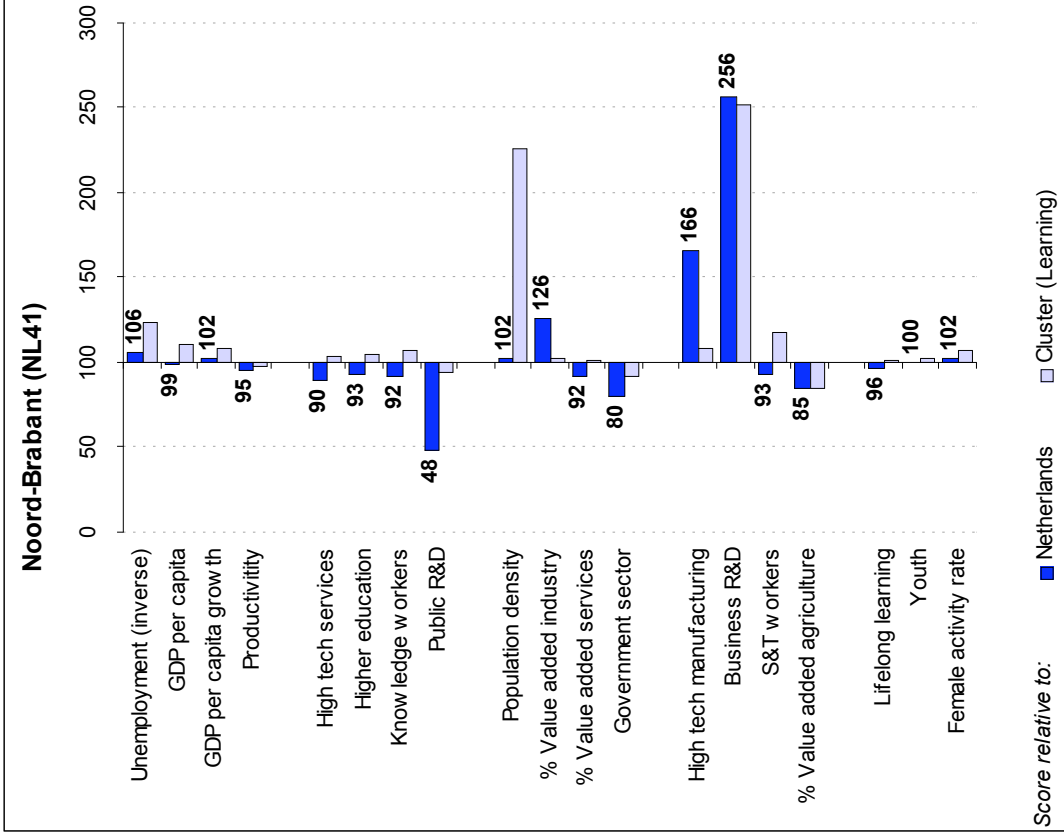


Zeeland is one of the three southern Provinces in the Netherlands. It has a relative low unemployment rate. Public R&D is very low and also the other indicators of the Public Knowledge factor are low compared to the national and the EU learning regions average. Typical for the south of the Netherlands manufacturing is still an relative important sector. High- and medium-high manufacturing is well represented in Zeeland, but Business R&D is rather low.

Noord-Brabant has a weakness in public R&D but a very strong performance in business R&D. Therefore the knowledge economy profile of Noord-Brabant is close to that of the Nordic high-techs learning regions. Both Noord-Brabant and Limburg are the provinces in the Netherlands that have a strength in both high-tech manufacturing as well as business R&D expenditures. The size of government administration is relatively small in Noord-Brabant.

Limburg also has a strength in high- and medium-high manufacturing as well as in business R&D expenditures but the indicators which to a large extent make up the Public Knowledge factor are the most weak aspect of the knowledge economy in Limburg. The unemployment rate is below that of the Netherlands as a whole and recently more jobs in manufacturing have or are threatened to disappear. Limburg also has the fastest aging society of the Netherlands.





Appendix C Categories used for policy-mix analysis

C.1 Classification of policy areas

Policy area	Short description
Improving governance capacities for innovation and knowledge policies	Technical assistance type funding used by public authorities, regional agencies and public-private partnerships in developing and improving policies and strategies in support of innovation and knowledge. This could include past ERDF innovative action programmes as well as support for instance for regional foresight, etc.
Innovation friendly environment;	This category covers a range of actions which seek to improve the overall environment in which enterprises innovate, and notably three sub groups: innovation financing (in terms of establishing financial engineering schemes, etc.); regulatory improvements and innovative approaches to public services and procurement (this category could notably capture certain e-government investments related to provision of services to enterprises) ; Developing human capital for the knowledge economy. This category will be limited to projects in higher education aimed at developing industry orientated courses and post-graduate courses; training of researchers in enterprises or research centres ²² ;
Knowledge transfer and technology diffusion to enterprises	Direct or indirect support for knowledge and technology transfer: direct support: aid scheme for utilising technology-related services or for implementing technology transfer projects, notably environmentally friendly technologies and ITC; indirect support: delivered through funding of infrastructure and services of technology parks, innovation centres, university liaison and transfer offices, etc.
Innovation poles and clusters	Direct or indirect support for creation of poles (involving public and non-profit organisations as well as enterprises) and clusters of companies direct support: funding for enterprise level cluster activities, etc. indirect support through funding for regrouping R&D infrastructure in poles, infrastructure for clusters, etc.
Support to creation and growth of innovative enterprises	Direct or indirect support for creation and growth of innovative firms: direct support: specific financial schemes for spin-offs and innovative start-ups, grants to SMEs related to improving innovation management, marketing, industrial design, etc.; indirect support through funding of incubators, training related to entrepreneurship, etc.
Boosting applied research and product development	Funding of “Pre-competitive development” and “Industrial research” projects and related infrastructure. Policy instruments include: aid schemes for single beneficiary or groups of beneficiaries (including IPR protection and exploitation); research infrastructures for non-profit/public organisations and higher education sector directly related to universities.

²² This is part of the wider area of in-house training, but in the present study only the interventions targeted to researchers or research functions will be analysed.

C.2 Classification of Beneficiaries:

Beneficiaries	Short description
<i>Public sectors</i>	Universities National research institutions and other national and local public bodies (innovation agencies, BIC, Chambers of Commerce, etc..) Public companies
<i>Private sectors</i>	Enterprises Private research centres
<i>Networks</i>	cooperation between research, universities and businesses cooperation between businesses (<i>clusters of SMEs</i>) other forms of cooperation among different actors

C.3 Classification of instruments:

Instruments	Short description
<i>Infrastructures and facilities</i>	Building and equipment for laboratories or facilities for university or research centres, Telecommunication infrastructures, Building and equipment for incubators and parks for innovative enterprises
<i>Aid schemes</i>	Grants and loans for RTDI projects Innovative finance (venture capital, equity finance, special bonds, etc.) for innovative enterprises
<i>Education and training</i>	Graduate and post-graduate University courses Training of researchers

Appendix D Financial and policy measure tables

D.1 Additional financial tables

D 1.1 RTDI plus business (innovation technology) support

CODES	ALLOCATED	DISBURSED	EXPENDITURE CAPACITY
OBJECTIVE 1			
152 - Environment-friendly technologies, clean and economical energy technologies (only for large enterprises)	124.000,00	92.188,36	74,3%
162 - Environment-friendly technologies, clean and economical energy technologies (only for SMEs)	2.385.287,60	1.371.308,96	57,5%
163 - Business advisory services (information, business planning, consultancy services, marketing, management, design, internationalisation, exporting, environmental management, purchase of technology) (only for SMEs)	1.425.284,60	949.398,80	66,6%
164 - Shared business services (business estates, incubator units, stimulation, promotional services, networking, conferences, trade fairs) (only for SMEs)	2.420.491,10	1.501.607,65	62,0%
165 - Financial engineering (only for SMEs)	6.135.891,30	2.809.044,15	45,8%
181 - Research projects based in universities and research institutes	1.510.982,20	630.559,20	41,7%
182 - Innovation and technology transfers, establishment of networks and partnerships between businesses and/or research institutes	2.634.874,50	1.140.692,20	43,3%
183 - RTDI infrastructure	2.875.000,00	1.075.488,50	37,4%
TOTAL OBJ. 1	19.511.811,30	9.570.287,82	49,0%
OBJECTIVE 2			
162 - Environment-friendly technologies, clean and economical energy technologies (only for SMEs)	21.714.383,40	11.093.952,75	51,1%
163 - Business advisory services (information, business planning, consultancy services, marketing, management, design, internationalisation, exporting, environmental management, purchase of technology) (only for SMEs)	40.909.703,45	19.355.804,20	47,3%
164 - Shared business services (business estates, incubator units, stimulation, promotional services, networking, conferences, trade fairs) (only for SMEs)	58.823.474,25	24.849.449,15	42,2%
165 - Financial engineering (only for SMEs)	16.899.155,50	9.425.067,72	55,8%
182 - Innovation and technology transfers, establishment of networks and partnerships between businesses and/or research institutes	15.034.295,20	8.121.560,55	54,0%
183 - RTDI infrastructure	3.632.480,00	1.903.501,58	52,4%
TOTAL OBJ. 2	157.013.491,80	74.749.335,95	47,6%

Categories 181 to 184 plus :

152 Environment-friendly technologies, clean and economical energy technologies
 153 Business organisation advisory service (including internationalisation, exporting and environmental management, purchase of technology)

155 Financial engineering

162 Environment-friendly technologies, clean and economical energy technologies

163 Enterprise advisory service (information, business planning, consultancy services, marketing, management, design, internationalisation, exporting, environmental management, purchase of technology)

164 Shared business services (business estates, incubator units, stimulation, promotional services, networking, conferences, trade fairs)

165 Financial engineering

D 1.2 Broad innovation and knowledge economy funding

CODES	ALLOCATED	DISBURSED	EXPENDITURE CAPACITY
OBJECTIVE 1			
152 - Environment-friendly technologies, clean and economical energy technologies (only for large enterprises)	124.000,00	92.188,36	74,3%
162 - Environment-friendly technologies, clean and economical energy technologies (only for SMEs)	2.385.287,60	1.371.308,96	57,5%
163 - Business advisory services (information, business planning, consultancy services, marketing, management, design, internationalisation, exporting, environmental management, purchase of technology) (only for SMEs)	1.425.284,60	949.398,80	66,6%
164 - Shared business services (business estates, incubator units, stimulation, promotional services, networking, conferences, trade fairs) (only for SMEs)	2.420.491,10	1.501.607,65	62,0%
165 - Financial engineering (only for SMEs)	6.135.891,30	2.809.044,15	45,8%
181 - Research projects based in universities and research institutes	1.510.982,20	630.559,20	41,7%
182 - Innovation and technology transfers, establishment of networks and partnerships between businesses and/or research institutes	2.634.874,50	1.140.692,20	43,3%
183 - RTDI infrastructure	2.875.000,00	1.075.488,50	37,4%
322 - Information and Communication Technology (including security and safe transmission measures)	1.405.673,90	773.120,70	55,0%
324 - Services and applications for SMEs (electronic commerce and transactions, education and training, networking)	2.450.673,90	1.043.265,50	42,6%
TOTAL OBJ. 1	23.368.159,10	11.386.674,02	48,7%
OBJECTIVE 2			
162 - Environment-friendly technologies, clean and economical energy technologies (only for SMEs)	21.714.383,40	11.093.952,75	51,1%
163 - Business advisory services (information, business planning, consultancy services, marketing, management, design, internationalisation, exporting, environmental management, purchase of technology) (only for SMEs)	40.909.703,45	19.355.804,20	47,3%
164 - Shared business services (business estates, incubator units, stimulation, promotional services, networking, conferences, trade fairs) (only for SMEs)	58.823.474,25	24.849.449,15	42,2%
165 - Financial engineering (only for SMEs)	16.899.155,50	9.425.067,72	55,8%
182 - Innovation and technology transfers, establishment of networks and partnerships between businesses and/or research institutes	15.034.295,20	8.121.560,55	54,0%
183 - RTDI infrastructure	3.632.480,00	1.903.501,58	52,4%
322 - Information and Communication Technology (including security and safe transmission measures)	9.449.770,25	4.497.490,90	47,6%
324 - Services and applications for SMEs (electronic commerce and transactions, education and training, networking)	28.736.949,30	14.984.170,35	52,1%
TOTAL OBJ. 2	195.200.211,35	94.230.997,20	48,3%

This third calculation adds RTDI plus business (innovation & technology) support plus information society. As D.1.1 plus:

322 Information and Communication Technology (including security and safe transmission measures)

324 Services and applications for SMEs (electronic commerce and transactions, education and training, networking)

D.2 Summary of key policy measures per programme

Exhibit 15: main measures in favour of innovation and knowledge

Identified RTDI measure or major project	Focus of intervention (policy areas classification)*	Main Instruments**	Main beneficiaries***
Flevoland obj. 1SPD: 3.6 Knowledge development and knowledge transfer (9 projects)	Knowledge transfer	Facilities & aid schemes	Private & Public
South obj. 2 SPD: 1.4 Strengthen physical knowledge infrastructure (9 projects)	Boosting applied research	Infrastructures and facilities	Public
2.1 Competitiveness SMEs (122 projects)	Boosting applied research and product development & Innovation poles and clusters	Aid schemes (micro-clusters)	Networks
Urban Areas NL obj.2 SPD	<i>No measure or projects could be classified as RDTI-oriented</i>		
East obj. 2 SPD: 2.1 Competitiveness SMEs	Support to creation and growth of innovative enterprises	Aid schemes	Private
North obj.2 SPD: 3.b Knowledge, Innovation and Sustainability (34 projects)	Support to creation and growth of innovative enterprises	Aid schemes	Private

* Classification of RTDI interventions: Improving governance capacities for innovation and knowledge policies; Innovation friendly environment; Knowledge transfer and technology diffusion enterprises; Innovation poles and clusters; Support to creation and growth of innovative enterprises; Boosting applied research and product development (see appendix).

**Classification of instruments: Infrastructures and facilities; Aid schemes; Education and training.

***Classification of Beneficiaries: Public sectors; Private sectors; Networks

Appendix E Case studies

Stimulus Cluster Regeling SPD South-Netherlands																										
<p>Title of project: STIMULUS Cluster measurement (in Dutch: regeling) Measurement 2.1 of SPD South NL Description : Over 100 clusters, which are companies that have cooperated in order to jointly develop a new product, have been supported by Stimulus in the South of the Netherlands. Zone: Objective 2</p>																										
Brief history and main features																										
<p>Although the term cluster is mentioned, the project does not involve all companies in a certain sector in a certain region, which is the most commonly expected definition of a regional cluster. The word cluster refers to a micro-network of companies and sometimes a knowledge institute that join forces, especially for the development of a specific product.</p> <p>Not all companies, but most of them are SMEs.</p> <p>The main support tool is the subsidy for product-development from Stimulus.</p> <p>There is however some diversity among the clusters, sometimes there were some large firms included in the cooperation, and knowledge institutions or people from the TUEindhoven. Their specific role differed per cluster-project.</p>																										
Main results																										
<p>The main results are the innovative products, some of them were already a commercial success before the project had ended, but for other cluster-projects it is too soon to tell if, and how big the commercial success will turn out to be.</p> <p>Recently the cluster instrument has been evaluated by Oerlemans & Rutten (2006), and the results are very positive and innovative. They have evaluated 39 out of the 102 cluster-projects. We provide a summary of the main conclusions of the evaluation results:</p> <ul style="list-style-type: none">- 83 organisations have realised the product innovation, only 10 did not, or not yet for some reason;- 93% of the organisations have stated that the quality objective of the technical requirements of the innovation were met.- Some 75% of the organisations have brought the product developed during the cooperation, to the market, often even during the project;- A large part of the participating organisations have generated turnover from the new products. For about a 3rd of the companies this even was more than 20% of total turnover;- About 75% of the participants in one of the cluster projects have stated that because of the new product they now are ahead of competitors;- Almost 75% is (very) satisfied with the support from Stimulus because of the flexibility and easy way of communicating.- Almost 75% of the participants had stated that the subsidy from Stimulus had been decisive to a very large degree in realising the product innovation. <p>Below is a small selection of Cluster projects and their budgets:</p> <table><tr><td>Clusterproject Steksteker:</td><td>1,382,253</td></tr><tr><td>Clusterproject Bruxstop:</td><td>112,333</td></tr><tr><td>Clusterproject Zaagmachine:</td><td>21,021</td></tr><tr><td>Clusterproject Groene Steen:</td><td>1,322,590</td></tr><tr><td>Clusterproject Venturi-windturbines:</td><td>216,188</td></tr><tr><td>Clusterproject Eijksysteem:</td><td>673,367</td></tr><tr><td>Clusterproject AnySphere:</td><td>1,337,657</td></tr><tr><td>Clusterproject Pro-Feet:</td><td>47,089</td></tr><tr><td>Clusterproject Virtuosity:</td><td>465,589</td></tr><tr><td>Clusterproject Bruxstop 2:</td><td>784,768</td></tr><tr><td>Clusterproject Intranet Acces</td><td></td></tr><tr><td>Control System (IACS):</td><td>257,476</td></tr><tr><td>Clusterproject Software Product</td><td></td></tr></table>	Clusterproject Steksteker:	1,382,253	Clusterproject Bruxstop:	112,333	Clusterproject Zaagmachine:	21,021	Clusterproject Groene Steen:	1,322,590	Clusterproject Venturi-windturbines:	216,188	Clusterproject Eijksysteem:	673,367	Clusterproject AnySphere:	1,337,657	Clusterproject Pro-Feet:	47,089	Clusterproject Virtuosity:	465,589	Clusterproject Bruxstop 2:	784,768	Clusterproject Intranet Acces		Control System (IACS):	257,476	Clusterproject Software Product	
Clusterproject Steksteker:	1,382,253																									
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Clusterproject Intranet Acces																										
Control System (IACS):	257,476																									
Clusterproject Software Product																										

Line System:	2,955,005
Reasons of success and conditions for repeatability	
<p>One of the reason we describe this policy instrument is that it was mentioned at the Focus-group as an appropriate case of good/best practice. The cluster-tool has also been recently evaluated by the University of Tilburg and another reason to take it as a good practice case is that some other regions will most probably also copy this type of instrument in their future programmes.</p> <p>The main socio-economic and institutional conditions that contributed to the success has been the dominant culture in Brabant in terms of informal networking, trust and ease of communications among the organisations in the same region.</p> <p>The cluster-instrument has been an example to other, similar projects in other regions in the Netherlands, e.g. in East, but it is to be expected that in the new SF period, more regions will start a similar project/measure.</p> <p>However, there may be some constraints in the transferability, especially for regions that do not have the dense networks of innovative manufacturing companies.</p> <p>Two recommendations from the evaluation we like to highlight here are:</p> <ul style="list-style-type: none"> • Stimulus could function more pronounced as an intermediate between knowledge institutions and companies; • The need for follow-up on the participation in projects by Stimulus (or a third party) after finalisation of the project. 	

Appendix F Further reading

Bibliography of references/documents used:

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Useful websites at national or regional level:

Samenwerkingsverband Noord-Nederland (SNN)	http://www.snnonline.nl/
Eurowerk	http://www.eurowerk.nl
Provincie Noord-Holland	http://www.noord-holland.nl
Kenniskring Amsterdam	http://www.kenniskring.nl
Province of South-Holland	www.zuid-holland.nl
Province of Noord-brabant	http://www.brabant.nl

Province of Limburg	http://www.limburg.nl
WBSO (R&D tax-deduction scheme)	http://www.senter.nl/sites/wbso
TNO Netherlands Organisation for Applied Scientific Research TNO	http://www.tno.nl
NWO, Netherlands Organisation for Scientific Research	http://www.nwo.nl
KNAW, Royal Netherlands Academy of Arts and Sciences	http://www.knaw.nl/english/index.html
Dutch Polymer Institute (DPI)	http://www.polymers.nl
Ministry of Defence	http://www.mindef.nl
Ministry of Economic Affairs	http://www.minez.nl
Ministry of Health, Welfare and Sports	http://www.minvws.nl
Ministry of Agriculture, food quality and preservation of nature	http://www.minlnv.nl
Ministry of Education, Culture and Science	http://www.minocw.nl
Consultative Committee of Sector Councils for research and development (COS)	http://www.minocw.nl/cos
Science Budget 2004; Focus on excellence and greater value	http://www.minocw.nl/english/doc/2004/sciencebudget.pdf
Innovation Letter ‘Action for innovation, tackling the Lisbon ambition’	http://apps.ez.nl/publicaties/pdfs/04113.pdf
Science, Technology and Innovation in the Netherlands; Policies, facts and figures	http://www.minocw.nl/english/doc/2004/stiinnl.pdf
Delta-plan Natural Science and Technology; actionplan to reduce shortages in S&T graduates	http://www.minocw.nl/onderwijs/deltaplan/index.html
“More flexibility, More choice, More quality; Funding higher education”	http://www.minocw.nl/brief2k/2004/doc/49422a.pdf
Kennis in kaart 2004; Gegevensbasis HOOP	http://www.minocw.nl/ho/doc/2004/kenniskaart.pdf
CBS (National office of Statistics)	http://www.cbs.nl
NOWT (Netherlands Observatory on Science & Technology)	http://www.nowt.nl
CPB (Central Planning Bureau)	http://www.CPB.nl
AWT (S&T advisory council)	http://www.awt.nl
Social Economic Council	http://www.ser.nl
Innovation Platform	http://www.innovatieplatform.nl/en/index.html
VSNU	http://www.vsnu.nl

Appendix G Stakeholders consulted

List of all individuals interviewed

Name	Organisation
Mr. Dick de Jager	Province of Noord-Brabant
Mr. Ruud van Raak	Ministry of Economic Affairs
Ms. Joke van den Brink	Province of Flevoland
Ms. Frank van Bussel	Province of Gelderland
Mr. H. Cock	Samenwerkingsverband Noord Nederland
Ms. C. Wansink	Ministry of Economic Affairs
Mr. Lambregts	Océ NV

Participants to focus group

Names	Organisation
Ruud van Raak;	Ministry of Economic Affairs
Joke van den Brink	Province of Flevoland
Frank van Bussel	Provincie Gelderland
Annette de Jonge	
T.Verhoef	Ministry of LNV
Fay van der Ven	
Wouter Bringmann	Ministry of Internal Affairs
Max Jeleniewski	Gemeente Rotterdam
M. Mensink	Province of Gelderland
Luc Boot	Province of Zuid-Holland
H..Verdonk	G-4
Els Beimers	Ministry of Internal Affairs
H. Cock	Samenwerkingsverb. Noord Nederland
Huub Bouman	Stimulus
Anko Jan Marringa	
Toon Bom	Municipality of Enschede
Rene Wintjes	MERIT, Maastricht University